

AUG. 9 1957

SCIENCES

AUGUST 1957

Contractors and Engineers

magazine of modern construction

Batching operations

Page 34



Digging Foundation Footings...



Digging footings as well as grading, this Crawler-Mounted multi-purpose Gradall speeds completion of Detroit's new, modern parking garage located under Grand Circus Park.

Gradall increases production 300% — saves \$350 a day — for Canonie Construction Co., South Haven, Michigan

Gradall cuts costs on all these jobs — and more!

- Hand finishing and clean-up
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CANONIE CONSTRUCTION COMPANY, South Haven, Michigan, used Gradall's power and accuracy to dig irregular-shaped footings for Detroit's new underground parking garage in Grand Circus Park. Working in sticky blue clay, Gradall rapidly carved footings 17 feet wide by 2 feet, 3 inches deep.

Previously, five men working with shovels, picks and compressor tools could complete only one foot-

ing a day. With a Gradall on the job, 4 footings a day were easily excavated, plus fine grading between footers—at an estimated saving of \$350 a day.

This report is typical of the cost-cutting jobs being handled daily by Gradalls throughout the country. Why not find out for yourself. Arrange for an on-the-job demonstration by calling your nearest Gradall Distributor today.

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Contractors and Engineers

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magazine of modern construction

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Push made on St. Lawrence contracts. Page 6



Curb breaker speeds road widening program. Page 22



Lock excavation yields sand for concrete mix. Page 54



Crushing setup works efficiently in road cut. Page 70

Urban Highways— cheap at the price

Last month a 2,000-foot section of the Brooklyn-Queens Expressway in New York City was opened to traffic as part of an 11-mile artery which eventually will connect LaGuardia Airport with Gowanus Parkway. We use the word "eventually", for this project that was started in 1941 is not scheduled for completion until 1962. In between that 21-year period a couple of wars took place—World War II and the Korean "police action"—and still construction lagged. This recently added segment cost \$2½ million to construct, just a fraction of the \$125 million which is the current estimated cost for completing the project. That puts the average cost per mile at \$11-million-plus.

We are becoming used to prices that would have seemed fantastic for urban highways not too long ago. Indeed, if a section of this particular expressway had not been included as part of the new interstate system of defense highways, the superhighway would surely not be ready in 1962. For it was started with city funds alone, and only small portions of the road could be built as funds were made available. Now under the new national highway program, the federal government will pay 90 per cent of the cost, and the state will pay the rest.

The cost of these urban sections of the highway program may seem out of proportion when compared with road-building prices in the hinterlands. But when placed in their true perspective

as a solution to urban traffic stagnation, these arteries may be cheap at any price. For the burgeoning population growth in the United States is felt chiefly in the larger cities and their suburbs.

The highway program can be a boon to the heavily populated areas. There need be no waiting a score of years while a badly-needed urban artery is constructed. Money is available under the highway bill, but it must be spent wisely after careful planning, and where it will do the most good. And the planning must encompass all levels of engineering—federal, state, county, city, town, village—if the new route is to serve the purpose of unshackling a dense population center from the bonds of traffic congestion.

Of course even the best planned routes may generate traffic in volumes that were not anticipated. The New York State Thruway, which is one of the best planned and designed limited-access toll highways in the country, has developed a bottleneck that has called for some drastic relief measures. On Sunday afternoons and evenings, traffic rolling toward New York City piles up so before reaching the Tappan Zee bridge across the Hudson River that a 13-mile backup

develops on the three southbound lanes. To speed the homeward-bound motorist during the late afternoon and early evening hours of Sunday, officials are creating an additional lane for southbound traffic by utilizing the inside northbound lane of the Thruway. Traffic is guided into the reversed lane and protected over this 13-mile congested stretch by signs, traffic cones, and increased state police patrols. At the same time, northbound traffic is restricted to one lane, with no passing permitted.

Here is a splendid six-lane highway, not yet two years old, that is already inadequate to handle the volume of traffic at peak loads. While the bottleneck is in the open country, some 20 miles out from the city, the problem cannot be separated from urban planning. The stream of cars crossing the river bridge with returning Sunday drivers, week-end motorists, and homeward-bound vacationers, has been counted at 4,454 vehicles per hour. Fanning out these cars into urban traffic to eliminate congestion is no simple task. It calls for the cooperation and coordination of many minds. But it can be done and must be done if this crisis of urban congestion is to be solved.

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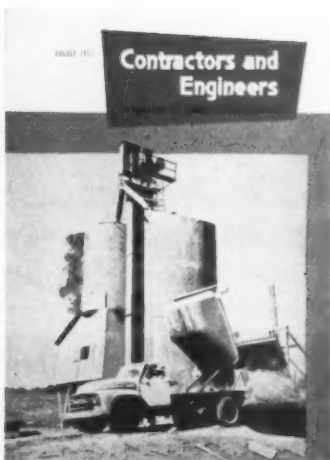
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Fast-paced batching operations keep concrete work moving swiftly on the low-sill structure for Old River Control project on the Mississippi River. The Ford with Dumpcrete body unloads cement to the hopper of a Johnson twin batcher, which discharges two batches simultaneously to two-compartment dump trucks loaded with aggregate.

Page 34





Graders work on steep slope to line reservoir with hot-mix

Using extra care in handling motor graders and rollers on the 3 to 1 slope of a reservoir helped save nearly three months' time in lining the sides and bottom of the \$650,000 facility built for the Helix Irrigation District near San Diego, Calif.

In only 20 working days, the crews of Kenneth H. Golden Co., Inc., San Diego, completed the lining job on the 110-million-gallon reservoir. Measuring 1,000x850x25 feet, the reservoir required some 18,000 tons of hot-mix for the 3-inch lining on the bottom and on the 80-foot-long, sloping sides. This lining was not designed as a completely waterproof barrier, but to serve as a smooth interior surface that will simplify the periodic cleaning of the reservoir.

Paving started as batch trucks dumped their loads at the top of the slope. Motor graders then ran the asphaltic concrete from the top to the bottom of the sloping sides of the reservoir.

When the blacktop had been distributed evenly down the slope, a two-stage rolling operation began. First, a 5-ton tandem asphalt roller was winched up and down the slope by a track-mounted crane to deliver initial compaction. In the second stage of this operation, an 8-ton roller was used in exactly the same way. The engines of the rollers operated only to supply power to the steering mechanisms. The winch operator, with an unobstructed view of the work, controlled all movement of the rollers up and down the slope.

Working on the project under C. G. Watters, chief engineer of the Helix Irrigation District, were R. H. Wilken, project engineer, and Tom V. Venator, project inspector.

THE END

M-H-F to start expanding, remodeling Detroit plant

Massey-Harris-Ferguson, Inc., Racine, Wis., has started expanding and remodeling its Detroit, Mich., plant. Every phase of the tractor assembly operation will be thoroughly reworked and designed for simultaneous assembly to be synchronized with incoming orders for tractor models.

When the plant is in full production, it will nearly double the working force and will have a single shift capacity of 250 tractors per day.

Fast and orderly paving is the rule on this 20-day lining job on the reservoir. As the batch truck dumps at the rim, a motor grader continues spreading the hot-mix. The track-mounted crane winches rollers up and down the slope to compact the hot-mix.



Only a small gap is allowed between operations. The steaming asphaltic concrete being spread by the grader and lute men is immediately compacted by the Buffalo-Springfield roller.

New Jersey completes 164-mile Parkway

Last 9 miles, like most of Garden State Parkway, are paved with heavy-duty, lower-cost Asphalt.



General view of Parkway during construction . . . grading subgrade for one lane in center . . . completed Texaco Asphalt pavement on other lane at left.



Applying Texaco Asphalt during construction of 7-inch Asphalt (Penetration) Macadam foundation.

The chain of popular summer resorts along the New Jersey shore are now reached in a fraction of the time formerly required, thanks to the new Garden State Parkway. This toll road is another example of the use of heavy-duty, smoother-riding, lower-cost Asphalt construction on modern, limited-access expressways.

Both the foundation and wearing surface of the final 9-mile section of the Parkway just completed were constructed with Texaco Asphalt. The 7-inch foundation is Texaco Asphalt (Penetration) Macadam, laid in two courses. The 2½-inch wearing surface is hot-mix, hot-laid Texaco Asphaltic Concrete. Shoulders on both sides of each 24-foot lane have a Texaco Asphalt (Penetration) Macadam wearing surface.

The flexibility of Garden State Parkway's asphalt base-asphalt surface construction enables such a pavement to maintain complete, lasting contact with the supporting subbase. That is why Asphalt successfully withstands heavy traffic impact year after year, also why Asphalt usually costs less to maintain. Its economy, compared to rigid paving designed for the same traffic, becomes increasingly important with rising road building costs.



Laying second course of the 2½-inch hot-mix Texaco Asphaltic Concrete wearing surface.



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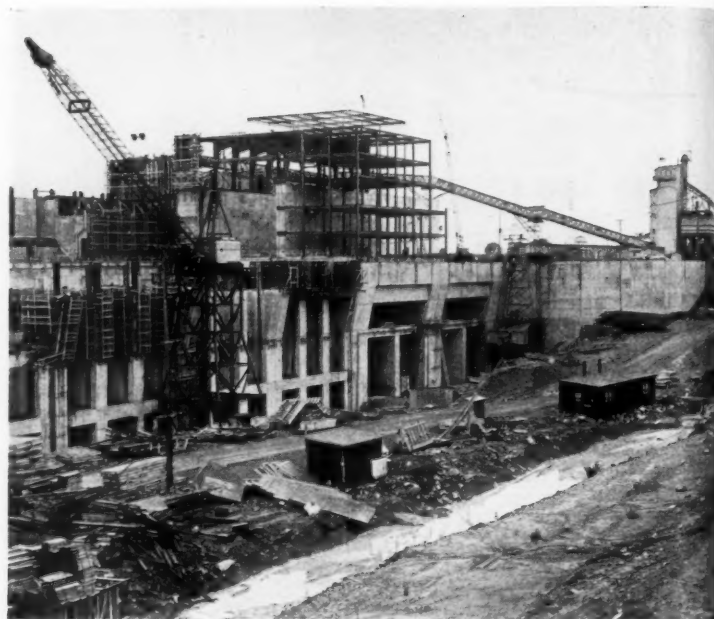
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Seaway and power contracts are pushed to speed

Progress on the St. Lawrence Project



Just beyond the abutment on the American side of the St. Lawrence Power Dam is sponsoring contractor Perini's Johnson batch plant. A seven-story administration and control building surmounts this end of the structure.



Iroquois Constructor, Ltd., is building the Canadian half of the St. Lawrence Power Dam. Concrete is moved from the batching and mixing plant, right, over the truss-type enclosed conveyor system. The American gantry, left, is setting forms.

by WILLIAM H. QUIRK,
editor



Tracks curving from the completed Stage I portion of Long Sault Dam indicate the outline of the 2,250-foot-long structure. American gantries are placing concrete in one of the monoliths.

A pair of Manitowoc crawler cranes work within the cellular cofferdam at Iroquois Dam, getting forms ready for a pour. The permanent gantry in the background is one of two units that will control the sluiceway gate openings.

Power on the line in '58, and deep-draft shipping from Montreal to Lake Erie in '59, is the goal now in sight for the St. Lawrence Seaway and Power Project.

Following a tight timetable, contractors working for four different agencies continue to toil 'round-the-clock to meet strict schedules. Such has been the policy since the first shovel of dirt was turned along the Canadian border at a site near Mas-

sena, N. Y. in the summer of 1954.

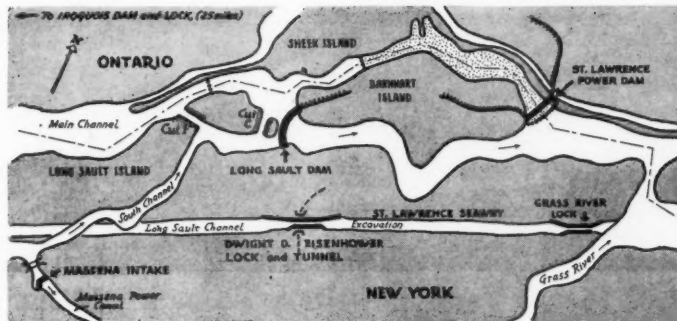
Despite unpredictable subsoil conditions, adverse weather in a wintry climate, some labor trouble, defaults and bankruptcies by a couple of contractors, the major construction firms involved are rapidly shaping this billion-dollar project into one of the nation's great hydroelectric and navigation developments.

Structures now being built will utilize an 83-foot drop in the Interna-



CONTRACTORS AND ENGINEERS

The location of the St. Lawrence Seaway and Power projects is shown in this sketch. Contractors are working round-the-clock to keep their jobs to the construction timetable.



tional Rapids section of the St. Lawrence to develop 2,200,000 horsepower or 1,880,000 kw. This figure is surpassed only by the 1,974,000 kw of Grand Coulee on the Columbia River. The locks and dams will also provide a 27-foot channel, eventually permitting deep-sea shipping to serve ports on the Great Lakes.

The power and navigation aspects of the project are closely coordinated. So, too, are the agencies sponsoring the work on both sides of the border. The navigation work is a joint venture of the United States and Canada. The U. S. Army Engineers, Buffalo District, supervises the design and construction of the American navigation facilities for the St. Lawrence Seaway Development Corp.—a federal agency. This agency was established by Congress in 1954 to build the United States part of the Seaway with money borrowed from the Treasury. Income from tolls is expected to pay for the U. S. section of the Seaway in fifty years. The corresponding Canadian agency is the St. Lawrence Seaway Authority. At present Canada has no plans to charge tolls.

Power development is a joint operation by the Power Authority of the State of New York and the Hydro-Electric Power Commission of Ontario. No public funds are involved in the construction. Bonds, backed by anticipated revenue from the sale of power, are financing the project. The two agencies will share equally the total 1,880,000 kw output of the generators.

Since the St. Lawrence project got under way, Contractors and Engineers' editors have been reporting the details of construction, particularly in the Oct., Nov., and Dec. issues of 1955 and the Oct. and Dec. issues of 1956. This following progress report brings you up to date on the major structures.

St. Lawrence Power Dam

Called originally Barnhart Island Power House, the St. Lawrence Power Dam now spans the main river channel between the eastern end of Barnhart Island and the Canadian shore west of Cornwall. It is actually two adjoining powerhouses, one for the U. S. and one for Canada, on either side of the International Boundary. The steel and concrete structure, acting as a gravity dam, is 3,200 feet long with a maximum height of 162 feet above the foundation. Power will be produced by 32 turbines and generators, 16 in each plant. The general contractor on the American side is a joint venture of Perini, Walsh, Morrison-Knudsen, Kiewit, and Utah, with B. Perini & Sons, Inc., the sponsor. Iroquois Constructors, Ltd., has the general contract for the construction

(Continued on next page)

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On this job on Federal Aid Rt. 168, Putnam County, Strunk Bros. is using four DW15s with Scrapers, four D8 Tractors, one D7 Tractor and two No. 12 Motor Graders. The job involves 103,507 cu. yd. of earth excavation and 120,642 cu. yd. of borrow excavation. Owner Harry Strunk says CAT* machines boost production, are economical on fuel and have little down time.

Now a new DW15 (Series E) Tractor with new No. 428 LOWBOWL Scraper

No matter how good a job a machine does, Caterpillar engineers are constantly looking for ways to improve it. And, the new model is *not* made available until it has been thoroughly job tested. That's the story behind the new DW15 (Series E)-No. 428 LOWBOWL Scraper. It's ready. The DW15's engine delivers 200 HP (maximum output capacity). With speeds up to 37.2 MPH, plus the extra sure-footedness of four wheels, the DW15 gives you faster hauls and cycle times with greater safety. The No. 428 Scraper has a capacity of 13 cu. yd. struck—18 cu. yd. heaped—and it loads quicker and more easily because of LOWBOWL design.

Your Caterpillar Dealer will gladly demonstrate the new DW15 and show you how it can pay off for you!
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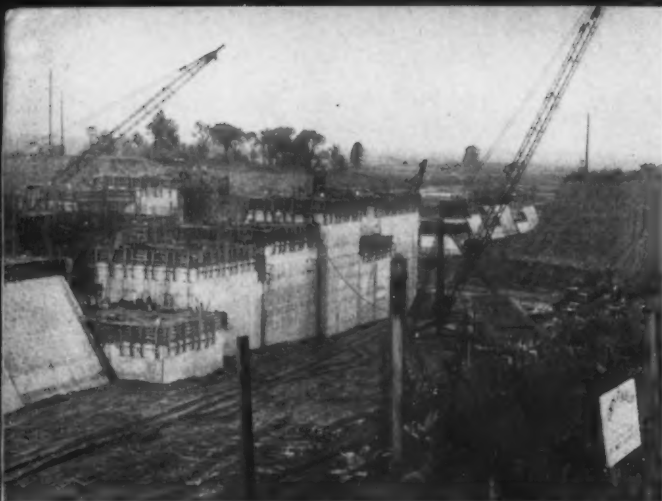
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American stiffleg derricks handle Blaw-Knox steel forms and place concrete at Eisenhower Lock.

(Continued from preceding page)

of the powerhouse on the Canadian side. The largest single job on the project, (\$600 million) its cost is shared equally by the New York and Ontario agencies. By the end of the year about 90 per cent of the concrete work is expected to be finished. While the job will not be completed until 1959, several turbines and generators will be installed to deliver initial power by the summer of 1958.

During the past winter the Canadian contractor placed concrete, protected by tarpaulins and heat, while the Americans suspended such operations until this spring. At present both contractors are working three shifts, with the bulk of the concrete being placed during the 4 p.m. to midnight "swing" shift.

Long Sault Dam

Four miles upstream from the



High-powered binoculars at Overlook 2 parking area help visitors get a better look at the construction of Long Sault Dam.

power dam is Long Sault (pronounced Soo) Spillway Dam, a concrete gravity structure with its axis curved upstream. When completed, it will be 2,250 feet long with a maximum height of 145 feet above the foundation. It is curved on a 1,600-foot radius.

The spillway section will have thirty 50-foot-wide vertical lift gates handled by two permanent 250-ton gantry cranes. It will have a discharge capacity far in excess of the maximum river flow. Long Sault Dam will create the required head pond, and will also permit any excess flow to bypass the powerhouses when the plants are in operation. Both the St. Lawrence Power Dam and Long Sault Spillway

Dam will raise the water level about 90 feet above the river bottom, and will combine to maintain the head of water required to operate the generators.

No shortage of water is foreseen on the St. Lawrence, which is one of the most dependable rivers in the world. Its maximum flow is only twice its minimum. This record contrasts favorably with the Columbia, for instance, which has a maximum flow as much as 33 times its minimum. The 94-year mean flow of the St. Lawrence is 256,000 cfs.

Long Sault Dam closes the South river channel, stretching from the upper end of Barnhart Island to the American mainland. Since it is entirely in U. S. territory, it is being built by the Power Authority—State

of New York, under a joint venture contract to Walsh, Perini, Morrison-Knudsen, Kiewit, and Utah. Walsh Construction Co. is the sponsor for the \$36,789,000 contract.

The entire flow of the St. Lawrence now passes through the Stage 1 structure. Unwatering of the Stage 2 area has been completed. Excavation and concrete placing is continuing in this area, with completion scheduled by the end of 1958.

Eisenhower and Grass River locks

Formerly known as Robinson Bay lock, the Dwight D. Eisenhower Lock is part of the U. S. Seaway and is located in the middle of the 10-mile Long Sault Canal, just south of Long Sault Dam. The \$20,172,000 structure is being built by a joint venture com-

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the same "sealing in" action. It keeps out dirt and moisture to give top protection against wear and rust. And it won't jar out, pound out, or squeeze out. In fact, *Texaco Marfak* has proven so successful that over 650,000,000 pounds of it have been sold!

If you prefer an all-purpose lubricant, your choice would be *Texaco Marfak Heavy Duty*



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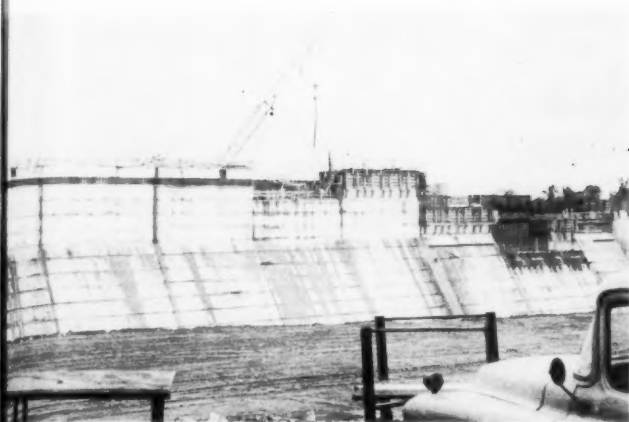
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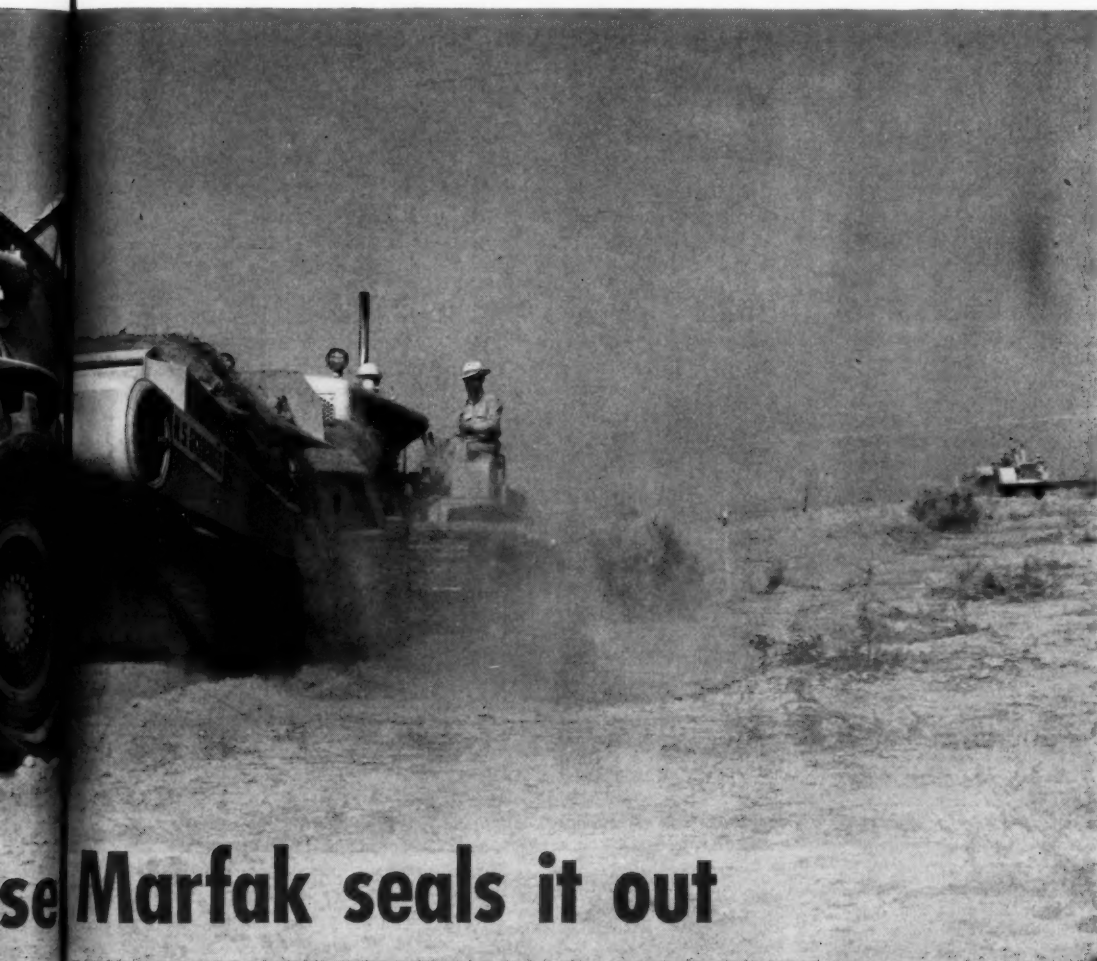
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Concrete monoliths take shape at Grass River Lock. The Perini firm is the joint-venture sponsor for the facility, which is similar in size to Eisenhower Lock.

Stage 2 construction at Iroquois Dam includes gate guide towers which are rising from partially completed piers.



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bine of Morrison-Knudsen, Walsh, and Perini-Quebec. M-K is the sponsor. This upstream lock is 860 feet long, 80 feet wide, with a minimum depth of 30 feet over the sills. Maximum lift is 49 feet. Eisenhower Lock is expected to be finished by June 1958.

Grass River Lock, about 3½ miles downstream from Eisenhower Lock, is being constructed by a joint-venture combine of Perini, Walsh, Morrison-Knudsen, Kiewit, and Utah for \$26,753,000. Perini is the sponsor. The two locks are similar in size, and are connected by an intermediate pool which is to be maintained at elevation 200. Each lock will employ a lift of about half the head of the power dam, which will total around 90 feet. Grass River Lock is scheduled for completion by May 1958.

The Long Sault Canal and locks will handle vessels up to 25,000 tons and 700 feet long, and with a beam of 75 feet and a draft of 25 feet. Both lake-type and ocean-type ships will use the Seaway. The locks and the canal should be ready to accommodate vessels of 14-foot draft in the International Section of the Seaway in 1958. Early in 1959 the whole of the Seaway will be available for 27-foot navigation.

Iroquois Dam and Lock

Upstream 25 miles from Long Sault Dam, the N. Y. Power Authority is constructing Iroquois Dam, a buttressed gravity concrete structure with gate-controlled sluiceway openings. It will be 2,250 feet long, with a maximum height of 145 feet above the foundation. Peter Kiewit Sons' Co. is sponsor for the joint venture of Kiewit, Arthur Johnson, and Al Johnson on this \$16,278,000 contract. Stage 1 of this construction is finished, and concrete placing is progressing rapidly on Stage 2. Scheduled for completion early in 1958, this dam will control the outflow from Lake Ontario into the upper end of the power pool.

At the north or Canadian end of the dam, the Canadian St. Lawrence Seaway Authority is constructing Iroquois Lock through a joint venture of four Canadian contractors for \$6½ million. The single lock for bypassing the dam is 768 feet long, 80 feet wide, and will have a 30-foot depth over the sills. Its completion is scheduled for the end of this year.

Until the new locks and Seaway



Excavation for Iroquois Lock on the Canadian Seaway continues against the background of Iroquois Dam.



A big American Revolver gantry handles a concrete bucket for a wall pour on Iroquois Lock.

"10,000,000 cu. yds. of earth compaction is keeping our *Southwest* compaction spread busy at Casitas Dam,"

reports
WINSTON BROS.
Nationwide Contractors

The U.S. Bureau of Reclamation Project at Casitas Dam in Ventura County, California will form a 250,000 acre feet reservoir four miles long, two miles wide, and 250 feet deep. The earthfill dam structure itself will be 285 feet high, 2000 feet across, and 1800 feet wide at the base. Part of the \$27,500,000 Ventura River Water Reclamation Program, contract for Casitas Dam is \$8,576,000, with completion scheduled for 1960.

More than 10,000,000 cubic yards of material will be used in the dam project—most of it from borrow sites above and below the structure. Clay, silt, sand, and gravel will be spread and compacted in five different zones on the job. Lifts are specified variously at 6 to 12 inches, dependent on the zone involved and the materials applied.

To meet U. S. Bureau of Reclamation compaction specifications, Winston Bros. brought to the job a spread of Southwest compaction equipment consisting of a tandem 5'x5' double-drum Sheepsfoot Roller, pulled by a Cat D9 Tractor, a single 5' x 5' Southwest double-drum Sheepsfoot Roller, pulled



by a Cat D8 Tractor, a new Southwest multiple-drum Sheepsfoot Roller, pulled by a Cat D8 Tractor, and two Southwest Sprinkler Tanks—one 5000 gallon and one 6000 gallon capacity—both integrally mounted to Cat DW21 Tractors. This compaction equipment spread will be supplemented as the job progresses so that the contractors will compact as much as 30 to 40 thousand cubic yards of material per day at peak operation.

In Zone #1 on the job—a critical area—earth fill is spread 9 inches deep and compacted to 6 inches. Compaction is achieved with an average of only 12 passes by the Southwest Sheepsfoot Rollers. Bureau of Reclamation engineers report the compaction is topping 96 and has hit as high as 106.

Perhaps one of the most interesting factors on the job, to earthmoving men generally, is the use of the high-speed Southwest 5000 and 6000 gallon Sprinkler Tanks integrally mounted on Cat DW21 Tractors. They operate not only to assist in compaction on the dam structure, but to maintain the heavily traveled, two-way, 2-3 mile haul roads as well. The two big sprinkler tanks meet the requirements of a job which demands a tremendous amount of water to meet compaction specifications,

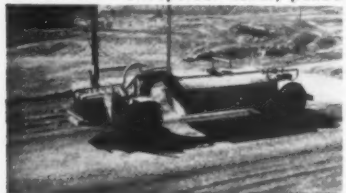


and a time factor which demands that haul roads stay in top shape. The large capacity of the tanks and the high speed of the rigs themselves enable the operators to apply more water in fewer trips at substantial savings in time, Winston Bros. reports. The wide swath of both the front and rear sprinkler bars (45 feet and 55 feet, respectively) combine the ultimate in efficiency with speed. The Cat DW21 Tractors are perfectly matched with the tanks, making an agile team that moves well under almost any conditions. In-the-seat, finger-tip controls greatly facilitate operation of the sprinklers, and the big rubber tires afford the flotation necessary for working on soft fills.

Winston Bros. personnel also report they are pleased with the new multiple-drum Southwest Sheepsfoot Roller. It is proving more versatile than the standard double-drum type, does a better job of compaction on uneven terrain, and requires less drawbar pull with consequent higher operating speeds, particularly on turns.

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WHEN YOU USE
SOUTHWEST**

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Pneumatic Compaction Rollers • Sheepsfoot Rollers • Rippers • Sprinkler Tanks

Southwest

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CONSTRUCTION MACHINERY DIVISION

Southwest Welding & Manufacturing Co.

ALHAMBRA, CALIFORNIA

(Continued from preceding page)

canal are completed, present shipping on the St. Lawrence will continue to use the existing 14-foot Canadian canals and locks that carry small vessels around the rapids of the St. Lawrence.

Other work

Nearing completion this year also is the Massena Intake structure which will regulate the flow of water going from the reservoir to the Massena Power Canal. This \$7,800,000 gravity-type intake is being built for the Power Authority—New York State by Morrison-Knudsen, Perini, Walsh, and Utah companies.

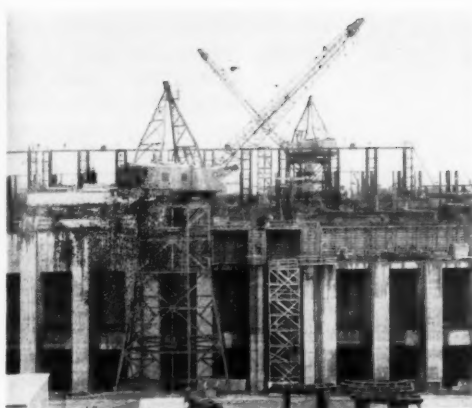
Various channel improvement contracts are also expected to reach an advance stage by the end of 1957.

Both the American and Canadian shores will be flooded by the power pool, but the effect on the sparsely settled U. S. area is negligible. This is not so on the Canadian side, however, where seven villages are in the path of the future reservoir. Over 6,500 people are being moved to three new communities where schools, churches, roads, sidewalks, shopping centers, waterworks, sewage plants, factories, and similar facilities are being built. Some families are moving their houses intact and setting them on new foundations. Others are buying new houses. Clearing of the abandoned townships will be finished by the end of 1957. About 20,000 acres will be flooded on the north shore, and 18,000 acres on the south or American shore of the St. Lawrence.

In the meantime, the Power Authority of the State of New York has been allocating the power it will have for sale. Reynolds Metal Co., which is building an \$88 million aluminum production plant at Massena, will get 239,000 kw. A like amount was awarded to the Aluminum Company of America, which has been located in Massena since 1903 and, at present, is engaged in a \$25 million program of modernizing and expanding its facilities there. Another 12,000-kw request from General Motors Corp. was also approved. GM is planning for Massena a \$15 million foundry for casting Chevrolet aluminum transmission parts and pistons.

Other buyers of the St. Lawrence power include the State of Vermont,

CONTRACTORS AND ENGINEERS



Concrete work on the American half of the St. Lawrence Power Dam goes on round-the-clock. Washington gantries prepare forms during the day for a night pour.



Visitors to the Canadian Iroquois Lock have a high vantage point on this observation platform for viewing construction.

municipalities, and several private power companies.

The St. Lawrence power project requires about 2.7 million yards of concrete for structures on both sides of the river. Aggregate will total around 2.7 million tons of stone and 1.7 million tons of sand. Structural steel will total approximately 20,600 tons, while other steel for such things as gates, hoists, and cranes will add up to some 20,200 tons. For the four principal structures, rock excavation is estimated at 505,000 yards and dirt excavation at 4,220,000 yards.

Connecting channels

While an international labor force of close to 15,000 is speeding the various seaway and power projects of the St. Lawrence, other forces are already deepening or planning to deepen connecting channels between the Great Lakes. (See "Start Made on Deepening Channels Linking the Upper Great Lakes", C&E, November, 1956, p. 36.) When these dredging projects are completed by 1962, deep-draft ships will sail 2,342 miles from the Atlantic Ocean to Duluth, Minn., at the western tip of Lake Superior.

For the most part, the depths of the Great Lakes are ample for all types of navigation. But the connecting channels between the lakes west of Lake Erie need deepening. Channel depths at present are generally 25 feet in down-bound and two-way channels, and 21 feet in up-bound channels. All channels will eventually be dredged to a minimum 27-foot depth to conform to depth of the St. Lawrence Seaway. This depth will accommodate the larger, faster, and more economical vessels now being added to the Great Lakes fleet. The economic relationship is particularly emphasized since each additional inch of draft permits about 90 more tons of cargo in a large freighter.

The connecting channels to be widened include the waterways between Lake Erie and Lake Huron; Lake Huron and Lake Michigan; and Lake Huron and Lake Superior. These dredging projects cover about 130 miles of channels ranging from 300 feet to 1,200 feet in width. About 44 million cubic yards of material must be moved. The total cost of this work

(Continued on next page)

Tubeless Tires Score Again



NOTHING's tougher on tires—or rims—than running over jagged rocks, as you may have good reason to know.

That tubeless tires can be used on such a job, and so effectively, is in large measure due to Goodyear's remarkable development—the Tru-Seal Rim. This is the rim that has been adopted as standard by the Tire and Rim Association for tubeless replacement of all conventional tire sizes 12:00 and larger.

Tru-Seal is the only practical, economical method yet devised to seal a multiple-piece rim. It's just one of the many advances resulting from Goodyear's matchless experience in building rims for every type of vehicle. When you specify Goodyear rims you get:

Unusual Strength: Thanks to an exclusive double-welding process, and added support at points of greatest stress, present-day Goodyear Rims are far stronger than previous rims.

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Bond-a-Coat Finish: This protective coating affords long-lasting resistance to rust and corrosion.

If you have a rim problem, why not talk it over with the G.R.E. (Goodyear Rim Engineer). He'll save you time and money by helping you select the type and size of rim best suited to your needs. Write him at Goodyear, Metal Products Division, Akron 16, Ohio, or contact your local Goodyear Rim Distributor.



New Tru-Seal Rims—for sizes 12:00 and up, including all earth-mover and grader sizes. This rim is similar to multiple-piece rims now in use—PLUS airtight Tru-Seal rubber ring which compresses into sealing groove when tire is mounted.

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Tru-Seal—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

MORE TONS ARE CARRIED ON GOODYEAR RIMS THAN ON ANY OTHER KIND

For more facts, use Request Card at page 18 and circle No. 196

(Continued from preceding page)



Maps, photos and descriptive text on this bulletin board at Overlook 2 orient the visitor at Long Sault Dam.

is estimated at \$136 million, and it is being carried out by private firms under the supervision of the U. S. Army Corps of Engineers.

Dredging under way

Channel work got under way on May 28 of this year on the \$23 million Amherstburg Channel in the lower Detroit River on the Ontario, Canada, side of the International boundary. The cost is being borne entirely, however, by the United States, and the contractor is Marine Operators, a new organization made up of four large midwest construction firms: Al Johnson Co., Minneapolis, Minn.;

Peter Kiewit Sons Co.; Cunningham-Kiewit Co., Omaha, Neb.; and Morrison-Knudsen Co., Boise, Idaho. The job involves the removal of 2 million yards of rock from the up-bound channel for lake traffic entering the Detroit River system from Lake Erie en route to Lake Huron. About 6 feet of rock must be drilled, blasted, and dredged from along a 6-mile stretch of channel bottom. This contract is scheduled for completion by June, 1960.

A second phase of the connecting channels project is strung out along 14 miles of the lower St. Marys River joining Lake Huron and Lake Superior. Dredging of this waterway, known as the Middle Neebish Channel, involves three contracts totaling nearly \$20 million. The successful bidders and the contract prices are: Price Bros.-McClung, Inc., Dayton, Ohio, \$1,199,470; Great Lakes Dredge & Dock Co., Chicago, Ill., \$10,816,330; Dunbar and Sullivan Dredging Co., Detroit, Mich., \$7,259,260. Work is just getting under way on this second phase.

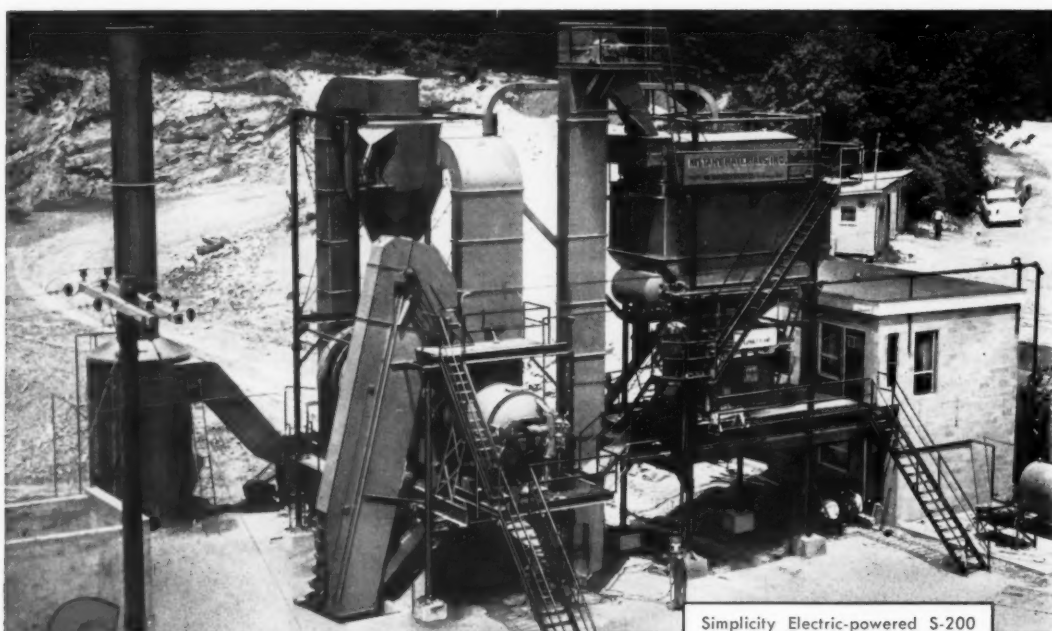
In addition to the work in the Amherstburg Channel of the Detroit River, and the Middle Neebish Channel of the St. Marys River, channels will be dredged in Lake St. Clair, the St. Clair River, and the Straits of Mackinac.

Over-all supervision of construction in modernizing the Great Lakes connecting channels is directed by Brig. Gen. Louis J. Rumaggl, Division Engineer of the North Central Division, U. S. Army Corps of Engineers, Chicago, Ill. The contracting officer is Col. Peter C. Hyzer, Detroit District Engineer. The Corps of Engineers estimates that the connecting channels project will require the full output of eight large dipper dredges, two large hydraulic dredges, and a sea-going hopper dredge. Each dipper dredge would be attended by one or two large tugs, a derrickboat, one or two launches, and from two to four large dump scows. In channels with rock bottom, dredging must be preceded by submarine drilling and blasting operations involving the use of special drillboats. From 800 to 1,000 men will man and supervise the dredge fleet.

Allied projects

Besides the channel work on the 1,200-mile Great Lakes waterway, another active dredging project is the Calumet-Sag canal at Chicago. This project joins the Illinois-Mississippi River Waterway with the Great Lakes-St. Lawrence system. (See "Big Draglines Dig Rock to Widen Cal-Sag Canal," C&E, May, 1957, p. 54.) This channel will have an average depth of 11 feet and will be completed early next year.

The Corps of Engineers is also studying further improvement of harbors on the lakes in the interest of present and prospective deep-draft commerce. None of the federally-improved harbors now has a 27-foot



Simplicity Electric-powered S-200 plant of Nittany Materials, Inc., at Stroudsburg, Pa. One man operation by fully automatic controls in the air-conditioned room at right.

Simplicity's

basically different design can mean much to you in the Road Building "Rat Race".

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Dependable, Durable and Economical.
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Two Furnaces on One Double Shell Dryer.
- **DOUBLE ZONE MIXER**
Faster and More Thorough Mixing.
- **FOUR TON MIXER**
Properly Designed, Not An Overloaded 3-Ton.
- **FULLY AUTOMATIC BATCHING AND MIXING**
Faster, Accurate, Dependable.
- **ASPHALT PLANT AIR WASHER**
Protects Men, Machinery and Neighbors.
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Erection Time and Vibration Reduced.
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Asphalt Hot—Quicker and Cheaper.

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C&E to publish Convention Daily at three 1958 events

A unique service inaugurated last January with the ROAD SHOW DAILY and enthusiastically received by the entire industry will be continued next year by CONTRACTORS AND ENGINEERS.

Plans have been announced by this magazine for the publication of a daily newspaper at three key industry conventions next January and February.

The C&E CONVENTION DAILY will be published on three consecutive days at the annual meetings of the American Road Builders' Association, the Associated Equipment Distributors, and the National Sand and Gravel and National Ready Mixed Concrete Associations.

Publication dates will be January 20, 21, and 22 for the ARBA convention, scheduled for the Sheraton-Park Hotel in Washington, D. C.; January 27, 28, and 29 for the AED meeting, to be held at the Conrad Hilton Hotel in Chicago; and February 10, 11, and 12 for the Sand and Gravel-Ready Mixed Concrete joint convention, also slated for the Hilton in Chicago.

In addition to reporting the convention proceedings, the DAILY will provide full coverage of the equipment and materials exhibits scheduled in conjunction with each of the three meetings.

Present plans call for daily editions of 24 pages. CONTRACTORS AND ENGINEERS' staff members will be working months ahead of the publications dates assembling much of the editorial material to be used, and a staff of half a dozen editors, reporters, and photographers will be on hand for each three-day publishing cycle.

The DAILY will be distributed to the hotel rooms of convention delegates, at registration desks, and by mail to selected contractor, manufacturer, supplier, and dealer firms throughout the country.

Information about advertising rates and other aspects of the C&E CONVENTION DAILY may be obtained by writing to Contractors and Engineers, 470 Fourth Ave., New York 16, N. Y. A four-page dummy issue of the DAILY, giving editorial, advertising, and distribution details, will be sent on request.

(Continued from preceding page)

depth. Many of the port cities, anticipating increased waterborne commercial traffic, are improving their harbors. Chicago and Milwaukee are presently engaged in such modernization programs. Private industry is also expanding facilities in many locations along the lake shores to make maximum use of the new interconnected waterways systems.

For latest developments on the St. Lawrence Seaway financing see "Surveying Washington", page 148 of this issue.

THE END

For more facts, use coupon or circle No. 198



"Wish I had more men like George."



MODEL M-G Small, for light construction. 29" dia. Combination floating-finishing trowels. Gas. (M-E, Elec.)



MODEL JA-G Medium machine for general use. 34" dia. Float trowels snap on. Largest selling model. Gas.



MODEL JA-E One of the four electric models. 34" dia. For average size jobs. Snap-on trowels for floating.



MODEL JA-4G For average jobs. Four trowel design. 34" dia. Combination trowels. Fixed ring. Gas. (JA-4E, Elec.)

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MODEL BA-G For finishing large areas. 44" dia. Snap-on trowels for floating. Gas. (BA-E, Electric.)



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No matter how much or how little concrete finishing you do, there's a Whiteman Finisher that's perfect for your needs. Each of the 13 models incorporate exclusive Whiteman features and rugged construction, the results of 18 years of sound engineering and quality manufacturing. And each is designed to do the job faster, better and cheaper—to save time and money—to increase profits for you. Call your Whiteman distributor for details today!

More Whiteman Finishers
are in use than all
other makes combined!



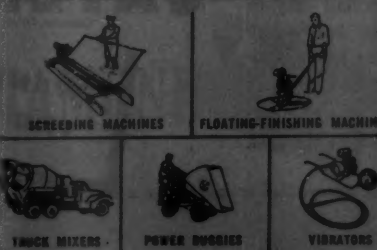
MODEL CA-4G Big, heavy-duty machine for large areas. 46" dia. 4 combination trowels. Fixed ring. (C-42, 42" dia.)



MODEL TW Twin, for extra-large areas. Finishes 5' width. Does work of two machines. No torque. Comb. trowels.

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Pay checks by Teletype

A new combination of AT&T and IBM is making good on a new, low-cost way of paying employees on jobs scattered throughout the country.

Now in use by the F. H. McGraw Co., the system makes it possible for a check prepared in the company's

home office in Hartford, Conn., to be delivered to the paymaster on a job in Brewton, Ala., in about 12 seconds. All computation and preparation of the payroll is done in the home office. The transmission of 200 paychecks 1,300 miles by Teletype is done at a

rate of about five per minute. At Brewton, the paymaster simply tears checks out of the Teletype machine, signs them, and delivers them to the employees.

McGraw's adoption of the remote control system for payrolls is a direct

result of the firm's efforts to trim its operating costs. Planned and developed by Frank McClean, McGraw's vice president, and Tom Williams, the firm's processing director, the rapid payroll system has more to offer than the obvious advantage of cutting down on the need for payroll personnel and machines at a job site.

With all the accounting being done at the home office, it is a simple matter to find out if costs for a particular phase of the job are running over estimates. If they are, management can quickly deal with the situation. The system also eliminates the need for trying to find qualified clerical help to work in the field office, and this



**"ONE GREAT PIECE OF EQUIPMENT
...THE NO. 933
TRAXCAVATOR"**



Jim Heron, partner, R. L. Heron & Co.

The job shown here is on a street repaving contract in Los Angeles, California, following the construction of a big storm sewer. R. L. Heron & Co. uses the CAT* No. 933 Traxcavator to handle all its trenching and resurfacing work.

Says Jim Heron: "The tilt and fast bucket action and the oil clutch make this machine the best in its field. We've run a 2,200-foot water trench, three feet wide and nine inches deep, in about six hours with the No. 933. It really serves the purpose of two machines—a digger and a loader. It's one great piece of equipment!"

In any contractor's spread the new, improved Caterpillar No. 933 (Series E) Traxcavator is a money-making machine. It's fast, maneuverable and easy to move from job to job. It features a new heavy-duty undercarriage with new rugged track roller frame, new solid sprockets, new heavier idlers and new tough track rollers. The one-yard bucket is built for effective digging in tough materials, and the full 40-degree tilt-back

at ground level assures full loads without spillage. Fast-acting hydraulic lift controls and high reach speed up truck loading.

Ask your Caterpillar Dealer for a demonstration right on your job. He offers three sizes of Traxcavators—the new No. 933 Series E (1 yd.), No. 955 (1½ yd.) and No. 977 (2¼ yd.). And you can count on his reliable service and dependable Caterpillar parts to protect the long work life of the machines he sells. See him today.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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**WANTED—
THE HARD WORK**



Data on each employee's time and rate, Teletyped from the job site at Brewton, Ala., is received in the Hartford, Conn., home office on perforated tape. The tape is being fed through a machine to reprint the information on IBM cards.

can be a ticklish job, particularly in remote areas.

How system operates

The system is relatively simple. The paymaster at Brewton, Charlie Wade, gathers needed information on each new employee—badge number, social security number, name, and number of tax exemptions. This information is transcribed onto a paper tape by a keyboard tape perforator. This tape is fed into a tele-typewriter on the site and the data is transmitted to the home office in Hartford over private lines leased from AT&T.

Every day, the employee's type of time—straight, premium, travel—and the number of hours worked and hourly rate is transmitted to Hartford at a rate of 75 words per minute.

A tele-typewriter in McGraw's home office receives the information in both tape form and also in page form so that a check can be made for possible errors. The tape is fed into a machine that transfers the information to an IBM card. This is the card that is

For more facts, circle No. 199

CONTRACTORS AND ENGINEERS



2 When the payroll has been calculated by IBM machines, each employee's name, pay deductions, and net pay is transferred to a tape. This is run through the Teletype in the home office at a rate of 75 words per minute.



3 At the job site, 1,300-miles away, a roll of blank checks inserted in the teleprinter is being made out at a rate of five a minute. The paymaster only has to sign and deliver them to employees.

inserted in the electronic computer that handles 100 calculations per minute.

At the end of the work week, a card with all the employee's salary computations is inserted into a small machine that automatically transfers the information to a tape. Then the paymaster at Brewton is alerted to put a roll of blank check forms into the Teletype machine at the job site.

After he gives Hartford the go-ahead signal, he stands by to watch for mishaps or typographical errors as the checks start to roll out of the machine. The only remaining job for the paymaster is to tear the checks out of the machine, sign, and distribute them.

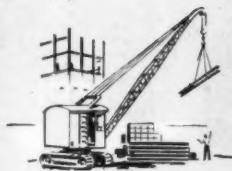
Wider use planned

The system has worked so well that the Brewton line of the rapid payroll system will soon be putting out the payroll for two other McGraw projects—one at Cresaps, W. Va., and one at Lakehurst, N. J. The increased volume of transmission will cut the cost of the system even more. Eventually, McGraw plans to have its several thousand employees all over the country on its electronic payroll system.

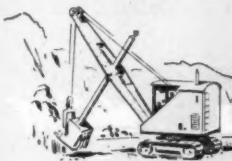
Though there will be telephone line load limitations for transmission, the firm does not yet know what they will be. According to estimates, one line, working round the clock, will handle a weekly payroll for almost 6,000 employees, slightly less than McGraw's payroll at the present time.

Part of cost-cutting plan

McGraw's adoption of the remote control system for payrolls is a result of its effort to trim operating costs. Able to buy materials and equipment at rock bottom prices because it makes huge purchases and gets trade discounts, and with a union setup that pegs craftsmen's rates on a level with those of competitors, McGraw is turning more and more attention to cutting indirect costs. Those involved in purchasing, expediting, timekeeping, and other phases of administration will come in for particular attention. Right now, one official is gathering facts and figures on closed-circuit television as a possible means of closer home office supervision . . . but that is another story. THE END



CRANES



SHOVELS

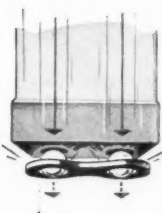


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ROLLER CHAINS

For more facts, use Request Card at page 18 and circle No. 200

This is the fifth in a series of seven feature articles, each complete in itself, on various aspects of roadbuilding. The articles were written specially for the ROAD SHOW DAILY, published by CONTRACTORS AND ENGINEERS magazine during the 1957 Road Show. They are being reprinted here, by request, for those who missed the Road Show. Each of the articles was written by a key figure in the roadbuilding industry.

Means and methods of construction paced by "needs"; more equipment development needed as work expands

Bituminous road construction

by James E. Ward
Bituminous Paving Engineer
Barber-Greene Co.



Teeth that really dig

LARGE or small



H&L leads the field

TOOTH COMPANY

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MONTEBELLO, CALIFORNIA

A discussion of the picture of bituminous road construction, as it stretches ahead in 1957, hinges as much on past developments as it does on the present situation.

For the history and the future of bituminous road construction is almost exclusively the story of a three-way race in which three contenders—"needs," "means," and "methods"—alternately forge ahead, then fall behind in a more-or-less regular pattern.

As always, the need paces the means. When vehicular traffic was sparse and individual units were light in weight, the old-time road, shaped up of earth by horse-drawn graders and topped with a light application of gravel or stone, was sufficient.

When numbers of vehicles made these roads alternately dust bins and mud holes, it became necessary to enter the second runner in the race. This was the means—the mechanical means by which improvement became possible. In their earliest form these means consisted of distributors to spread light tars or bitumens on the existing gravel surfaces. These materials acted as both a dust palliative and a sealer, at least to the degree demanded by the traffic of the times.

As soon as the need for better roads exceeded the existing means for constructing them, the third runner, methods, entered the race.

By methods I mean the study and technology of bituminous paving, the investigation and testing of improved mixes, base studies, etc. While methods often employ existing means, they also are capable of taking the lead in the race, forcing producers of the means to bend serious efforts to catch up. However, while methods and even means may from time to time draw abreast of need, the latter is usually out in front of the others.

Such has often been the case, as, for instance, when the various types of surface treatments superseded the oiled road surfaces. Surface treatments generally consisted of a light prime coat applied to the gravel roads. The whole was then covered with a heavier tar or bitumen. Immediately after the application of this heavier binder, crushed stone aggregate was spread and rolled into the bituminous layer. This was called

For more facts, use Request Card at page 18 and circle No. 201

This semi-automatic, portable asphalt plant produced nearly 300 tons of material per hour for a highway cutoff job near Palm Springs, Calif.



"armor coat", "seal coat", or "single aggregate surface treatment".

Again, heavy traffic caused this method of road construction to fall short. So, using existing means, a more advanced method was developed—the "road-mix" or "oil mat". Using disks, plows, graders, and tillers, the cheaper grades of aggregate were mixed, on the road, with tar or liquid asphalts, instead of being first bladed into place, shaped and compacted, then sprayed with the binder. Slow-curing road oil or tar was the common binder, although sometimes medium curing cutback asphalts were employed. The principal disadvantage in the use of cutbacks lay in the need for the great deal of blading which was required to remove the volatiles and provide a stable mix.

The travel plant

The method of construction having been investigated and proved, it now became the task of "means" to provide improved equipment to minimize the gamble of inclement weather—which would easily spoil a partially completed job—and increase the degree of quality of the mix. This means took the form of the travel plant, which consisted of a wheel-mounted twin-shaft pugmill mixer, towed and fed by a crawler-mounted bucket loader.

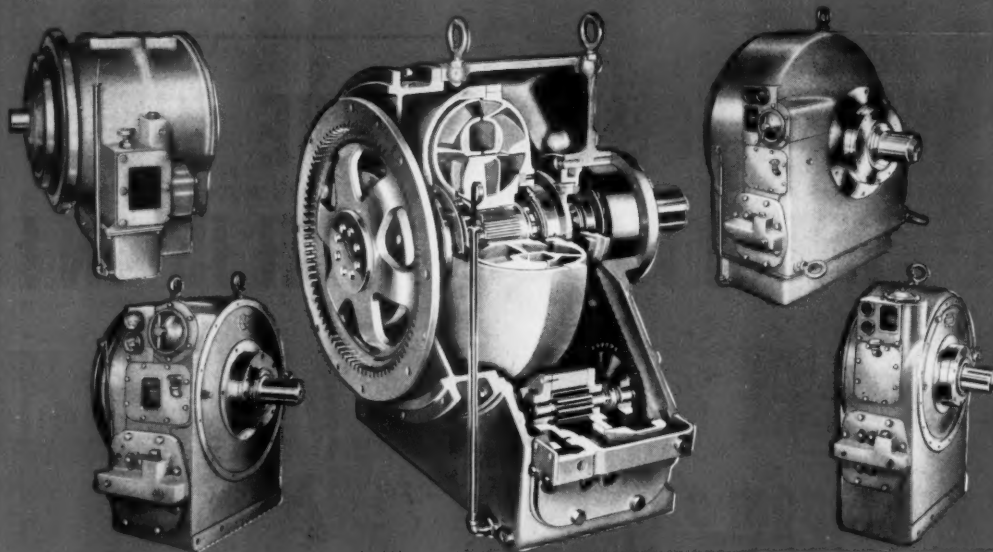
Among the many advantages offered by the travel plant were better proportioning, more thorough mixing and coating of individual particles, and ability to use heavier bitumens.

The travel plant, and several types of pulverizing mixers which produce roughly the same type of mix, are still popular in rural areas where the relatively light traffic loads make secondary roads of this type satisfactory.

It might be said that the twin-shaft mixing pugmill was "introduced" to bituminous road construction circles in the 1930's, and to a degree it would be true; for while it is true that batch-type mixers had employed this type of pugmill many years earlier, the urban location of virtually all of these plants, coupled with mix transportation difficulties and a lack of proper finishing equipment, limited their product to urban projects.

(Continued on next page)

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True Hydra-Foil Blade Design—a patented combination of blade contour and blade angle prevents cavitation, assures most efficient torque multiplication.

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For cranes, shovels, logging loaders, drill rigs, grading machines, heavy duty vehicles for on-and-off highway service.

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This paver-finisher lays a 13-foot width of blacktop on an airport paving project. Note the finishing tool dragged by the paver.

(Continued from preceding page)

So, if we consider roadbuilding as referring here to interurban or strictly rural road construction, it can truly be said that the introduction of the twin-shaft pugmill as part of the travel plant was a major forward step for "means".

Obviously, however, advanced as it may have been, the travel plant did not present the perfect means for road construction. It laid a cold bituminous mix, with the aggregate dried only by sun and wind and mixed at the ambient temperature. This latter factor made it impossible to use the highest quality, heavy asphaltic cements, since they require heat for mixing.

Since the methods by which bituminous quality could be further improved were now known, it remained to adapt known means, or develop new ones, to produce this higher quality mix.

The travel plant brought full-scale, high-quality bituminous mixing right onto the job site, thus making possible many thousands of miles of rural and interurban roads. However, to improve the quality of the mix so produced, it was necessary to add drying to the accurate proportioning of both aggregate and bitumen and the twin-shaft pugmill mixing which the travel plant offered.

To improve the means, the possibility of adding a traveling dryer to the mixer and loader was investigated in the mid 1930's. Although the operation was rewarded with a moderate degree of success, its greatest contribution was that it suggested an adaptation which was to lead to the whole family of portable, continuous-mix asphalt plants.

There were many problems connected with a travel dryer, such as what to do about fuel oil supply and the general fact that the loader-dryer loader-mixer train was an unwieldy operation.

Then came the suggestion to use the portability of the plant components to permit towing them from job to job, and at the job, to set them up in a centralized spot, probably near the aggregate supply. The mix would then be hauled to the job in trucks, dumped in windrows, and spread with graders as had always been done.

The continuous-mix, central bituminous plant had been born, and within a matter of years it was to achieve world-wide acceptance.

But there were still many fields in which needs were outstripping both means and methods.

Spreading

We mentioned earlier that lack of a suitable paver or finisher for bituminous mixes had kept early-day batch plants tied to small urban projects. Now, here was the continuous-mix central plant, capable of producing high-quality bituminous hot-mix, using the highest quality asphaltic cements and providing accurate proportioning of all ingredients of the mix. But what advance over the patrol grader had been made in spreading?

Fortunately, coincidental with the development of the continuous-mix plant, there also came the development of the mechanical finisher for bituminous mixes.

A self-propelled unit, crawler-mounted for maximum stability, this machine was able to lay mats of bituminous mix from 8 to 14 feet in width.

The outstanding advantages of the mechanical finisher, however, are concerned with the quality of the surface it produces, the manner in which it minimizes subgrade irregularities, and the degree of compaction which it imparts to the mat before rolling.

WATCH FOR FIRESTONE WHEN THE BIG PUSH IS ON!



Firestone Rock Grips lead all tire choices where highways end—and big jobs begin!

Firestone Tubeless Rock Grips save time where you're pushing big projects. That's because of two great tread designs that carry your heavy equipment over any terrain! They eliminate your need for changing tires to match the job. You get the full flotation you need for sand and soft stuff. You get the armored grip you want for rough runs over broken rock. Safety-Tensioned Gum-Dipped[®] NYLON bodies combined with cut-resistant treads make these tires top choice for off-highway users. Your Firestone Sales Engineer can show you why you'll make them your top choice, too. Contact him today—through your local Firestone Dealer or Store.

Firestone

BETTER RUBBER FROM START TO FINISH

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ROCK GRIP WIDE BASE

ROCK GRIP

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But, even as "means" and "method" overtook "needs" in our race, the overwhelming increase in both numbers and weight of vehicles once again saw "needs" take the lead.

It has long been recognized that the best aggregate (considering the term as applying to the total bulk of aggregate on a given job) was one in which there was good cubical fracture of the particles and a proper gradation of sizes from the coarsest to the finest, so that proper keying was possible. Through selection of a source of gravel having proper gradation, and by careful setting of the crusher, it was possible to obtain an approximation of the theoretically perfect gradation curve for a given mix.

However, as traffic loads increased in both weight and numbers, it became necessary to design mixes closer to theoretical perfection to get maximum load-carrying ability. The approximate compliance with gradation specifications was no longer sufficient.

For the continuous-mix asphalt plant this meant the development of the gradation control unit, to provide screening, separation, and proportioning or measurement of the aggregate sizes after drying. Equipped with interchangeable screens and individual storage bins with feeders interlocked with the mixer's bitumen pump to provide constant accuracy, the gradation control unit brought into being the high-type hot-mix plant.

It has not been my intention to ignore the batch mixing plant, since it too can produce intermediate and high-type mixes and can adhere to the specifications of any mix, as the operator is able to weigh out each ingredient of the mix separately. However, until about 1955, and throughout all of the period which we have just discussed, the conventional batch plant had not changed appreciably in design from the era of its first mention, early in this article.

And thus, we are brought to the present. Today, "means" and "method" have both achieved a degree of technology which would have been looked upon as nearly perfect twenty-five years ago.

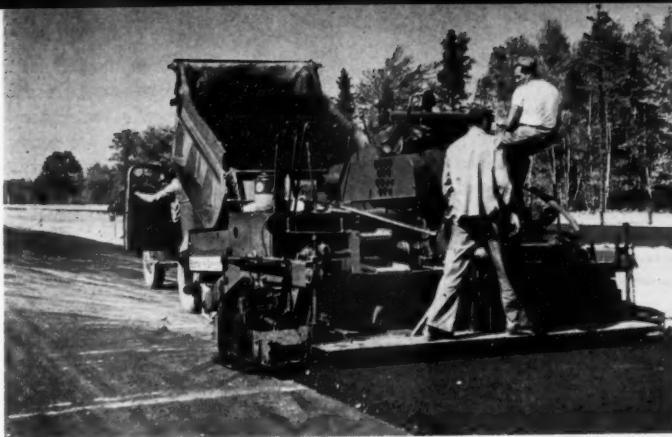
In the mechanical field of "means", there is a strong demand by users, hence much effort by manufacturers, in the twin directions of accuracy of control and high-capacity production. This is true in both mixing and lay-down equipment.

Concerning mixing equipment, the inherent accuracy of the continuous-mix plant, once the proportions of the aggregate sizes have been established, set, and locked, has made the emphasis on increased accuracy less essential than is the case with batch plants.

In the past few years, there has been a realization that as accuracy in proportioning has become vital to the success of high-type, high-load-bearing mixes, the human control simply does not provide the necessary degree

(Continued on next page)

A bituminous laydown machine places a base-course lift on a left-hand lane on the Maine Turnpike. Trucks dump to the paver as it moves along.



"SHEAR-BALL" TURNTABLE MOUNTING*

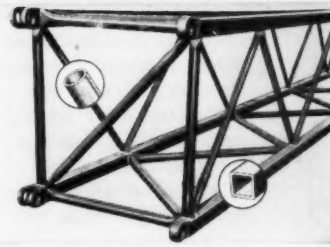
Turntable is secured to crawler and revolves easily and freely on a huge sealed "ball bearing." No center pin or nut, centering gudgeon or exposed roller path . . . no turntable rollers . . . no constant adjustment, maintenance or lubrication problems.

*U.S. and foreign patents applied for.



2-LEVER, "JOY-STICK" AIR CONTROLS

The newest and most effortless of all shovel-crane power controls. "Metered Air" feeds power to clutches at any rate desired—yet operator retains full "feel" of all operations. Fewer levers, fewer motions, faster, smoother, less effort, less fatigue, more output.



SQUARE-TUBULAR-CHORD BOOM*

This new patent-applied-for design has startling advantages over conventional types. Reduces weight and increases lifting capacities. 30-ton crane capacity on 14-ft. long x 13-ft. wide crawlers . . . up to 100-ft. boom, plus tip extensions available.

In the LORAIN-56 too the **BIG 3** make money for you!



MANUFACTURERS OF POWER SHOVELS, CRANES, CLAMSHIELDS, DRAGLINES AND HOES—ON CRAWLERS, RUBBER-TIRE MOTO-CRANES OR SELF-PROPELLED CARRIERS—EXCAVATORS, $\frac{3}{8}$ to $2\frac{1}{2}$ YDS.—CRANES, 7 to 75 TONS

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Just like the big $2\frac{1}{2}$ -yd. Lorain-85A, the fully convertible $1\frac{1}{4}$ -yd. Lorain-56 gives you the 3 big Lorain features that will mean more profits on any job. You get greater operating ease, longer life, higher production, reduced maintenance . . . plus increased crane capacities with these "Big 3" features.

There are many other "56" advantages, too, that make it an exceptional value in the $1\frac{1}{4}$ -yd. class. Here are a few: full air control of crawler operations . . . hoist and swing drums and travel shaft on anti-friction bearings . . . torque converter power-take-off . . . choice of two crawlers . . . crane capacities up to 30 tons available . . . a new, interchangeable hoe with dipper widths from 36" to 48" . . . and there are many more.

We would like you to know all about the Lorain-56. Why not see your nearby Lorain Distributor now—or write direct for the information you need.

THE THEW SHOVEL CO., LORAIN, OHIO

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AUGUST, 1957

(Continued from preceding page)

of accuracy. Today, then, we see virtually every type of batch plant, originally designed for manual operation, equipped with one type of automatic control apparatus or another.

In 1955, a radically different type of batch mixing plant was brought out which will almost certainly point the way for additional development, not only by the original manufacturer, but throughout the entire field as well.

In the newest type batch plants, five separate aggregate measuring bins are employed. The volume of each bin can be altered by means of a movable side wall. In calibrating the plant, each movable wall is set, by testing, so that its bin can hold only the amount of that particular aggregate size called for in the specifications. Once the individual bin settings have been established, all sizes of aggregate can be measured simultaneously, with consistent accuracy.

The asphalt is measured by lowering a suction pipe into a full weigh bucket until the weight of bitumen called for by the specifications has been drawn off. With the pipe set in this position, the same weight of bitumen will be drawn off for each succeeding batch. The asphalt sprayed onto the aggregate is weighed. The weight is not determined by the amount drawn into or discharged from the weigh bucket.

Weighing of the aggregate and bitumen, timing of the dry and wet mixing cycles, and discharging of the mix are all controlled by electric, not electronic, circuits and simple cycle timers.

To switch from automatic to manual operation to take care of a need for material of a different specification, the operator has a single lever control which extends each bin wall to its maximum point. He may then weigh out each size of aggregate separately, observing the weights on a dial scale in the conventional manner.

Continuing with the crystal-ball view of the future of bituminous paving, we find that running parallel with the need for greater accuracy in mixing is a need for greater plant capacity.

Among the factors which bear upon plant capacity are, first, the ability of the plant's dryer to reduce or remove the moisture inherent in the raw aggregate. This has brought about larger and more efficient dryers with top capacities exceeding 200 to 220 tons per hour.

Since portability remains a distinct requirement of bituminous mixing equipment, there is a definite practical limitation on both length and diameter of dryer drums. Hence, it is apparent that future improvements on drying capacity will be largely attributable to improvements in burner efficiency and elsewhere in the combustion system of the units, rather than to mere physical size.

Another element in the capacity picture lies in the plant's cold aggregate feed system. Hourly capacity in itself is almost meaningless, since the

profit payoff to the plant user lies in the daily capacity, the weekly capacity, or the average capacity for a given job. Shutdowns for any reason, since they cut off production while leaving the fixed costs intact, have a definite influence on daily, weekly, or over-all job capacity.

Many causes of shutdowns lie in relatively uncontrollable fields—accidents, part failures, etc. But one, at least, which is subject to user control is the matter of shortages in any of the sizes of aggregate called for by the mix specifications. To afford better control in the cold feed, much attention is being paid to improved sys-

tems of handling the aggregate from the stockpile to the plant.

Feed control

The employment of mechanical control over the proportion in the cold feed does not change the fact that the actual separation of the material is done, after drying, by the gradation control units in the case of a continuous-mix plant or the tower screens on a batch plant. It simply minimizes overflows or shortages at the final point of screening and separation.

The mechanical means of control in the cold aggregate feed take many

forms and some are quite elaborate, especially where high-capacity plants are involved, established in a more-or-less permanent location. Often, in such cases, stockpiles of the various sizes of materials are positioned over tunnels and reclamation of material is by means of underground feeders and tunnel conveyors, all converging on a single inclined belt leading to the dryer.

Automatically controlled tunnel feeds are becoming more popular where from one to seven or eight sizes of aggregate may be proportioned onto a single belt or cold feed elevator.

(Advertisement)

SOME UNUSUAL WAYS

Michigan Tractor Shovels are saving time and money for road builders around the country



Feeds portable crusher—Making good use of its high lift, Michigan Model 125A digs and dumps raw bank material into hopper of 100-ton-per-hour base material plant. Photo comes from Southern Hills Inc. pit near Dayton, Ohio, where the Michigan did the work of a more expensive, less versatile, far less mobile excavator-crane.

Grades shoulders—Special side bucket attached to Michigan 175A grades 3 ft shoulder next to newly-poured slab. Unique rig does jobs not possible with grader drop-blade . . . including filling holes, distributing gravel, removing spoil. Attachment, designed by Villa Contracting Co, is helping widen 27 mi of N.J. Garden State Parkway.



Pours concrete—Hauling concrete in Michigan Tractor Shovel bucket, Slattery Rock Corp. solves problem of laying 6 lanes of New York's Deegan Expressway under low viaduct. Two of these maneuverable "buggies" needed only 4 hours to 200 to 250 trips to pour 800 ft of each 12 ft lane.



These units emphasize the trend toward automatic control in asphalt plant equipment, and toward the reduction of importance of the human element in control, which we mentioned while discussing developments in automatic control of batch mixing plants.

Of course, the picture of increased plant capacity also requires a similar picture of increased capacity in spreading the mix.

Unquestionably, the field of mechanical spreaders for bituminous mixes will see many new developments within the next few years, although the existing models are still

more than able to keep pace with the output of existing mix plants. However, the next 10 years' proposed activities in the roadbuilding field seem to make it unlikely that there will be any plateau established in the matter of either plant or paver capacity.

Paver design

Currently there seem to be several controversies among proponents of the various schools of paver design. Which is better, wheel or crawler mounting? How about vibratory striking-off as opposed to tamping and screeding? What about the maximum laying speed?

Without peeking into the design rooms of the several makers of paving equipment, no accurate prognosis is possible, except to state that new designs and further progress in this field are certain to appear, perhaps in a matter of months, certainly in the next few years.

A final look into the future, based on trends today, touches upon the matter of general road design and specifically on base construction.

Working from the bottom up, the subbase is generally too far down for economical or convenient control. The practical limits of cost prevent any radical expansion of the thickness of

the bituminous mat which can be applied. As a result the logical place for improvement in the load-carrying ability of any given pavement design is in the base.

There are many factors to recommend improved base design and construction. A single inch of bituminous surface material may cost as much as four inches of base material, constructed with local aggregates. Obviously, if we can improve methods of base design and the means of constructing bases, we will have effected considerable economies in the construction of surface material.

Although many of the bituminous turnpikes constructed in the past few years have given much attention to the design of thick, carefully graded, well compacted bases, the equipment used to construct these bases offers a limitless opportunity for improvement.

Since proper mixing of base materials does not require uniform coating of each particle, depending instead on the uniform distribution of the stabilizing agent throughout the total bulk of the mix, it is possible to use mixed-in-place methods. However, as was demonstrated many years ago, such methods achieve capacity only at the expense of optimum distribution of the stabilizing medium.

Pugmill mixing need not be as thorough as is the case in bituminous mixing; therefore, it is possible to obtain the quality advantages of central-plant mixing while still achieving the unusually high capacity—400 tons per hour and more—which is essential in base construction. Because of the great depth of the base, as compared to the surface material, the tonnage for a given mile of base is usually four to six times as great as that for the surface material.

In order to further expand the development of improved bases, additional development will be needed in mechanical means for mixing economically at high capacity, using local materials; and for spreading rapidly with accurate control of depth and without undue segregation.

Such development is now being pushed by several manufacturers and by the several trade associations which are concerned. Stabilization pugmills, for use with clay, calcium chloride and portland cement, are already in use and are consistently producing upwards from 350 tons per hour. Admittedly, spreading equipment at this writing has not kept pace with mixing units, but some of the designs of equipment proposed show promise. In the field of compaction of base material, there is widespread use of extremely heavy rubber-tire rollers, as originally specified by Army engineers.

It has been proved repeatedly that bituminous paving can do the job under the heaviest, most concentrated, and repeated traffic loads. There is no reason to believe that there will be a leveling off in numbers of vehicles, even though limits have been imposed on axle loadings. And so the race continues, into the future, beyond the vision of our present "advanced" methods.

THE END

— For more facts, circle No. 205



Lifts pipe—One of Peter Kiewit's Michigans serves as all-around handyman on company's Indiana Turnpike contract. This 102 model lifts up to 11,000 lbs, carries, 5,500 lbs at 4 mph. Note excellent all-around visibility given operator.



Breaks, loads asphalt—Before resurfacing street in Worcester, Mass., Contractor Charles Chaffee uses 1 1/4 yd Michigan to strip old asphalt. No "ramming" is required—powerful breakout quickly shatters paving.



Cleans pavement—Highway must stay open said Nashville, so Wright & Lopez do cleanup with small, agile 16 cu ft Michigan. Only 4'2" wide, 10'8" long, unit works rapidly, doesn't damage traffic, doesn't damage newly-set pavement.



Removes sewer cover—When other big loaders failed, Kirby-Erwood's 133 hp Michigan succeeded in prying off this 2-ton concrete cover. Assignment was part of cleanup before widening Los Angeles freeway.

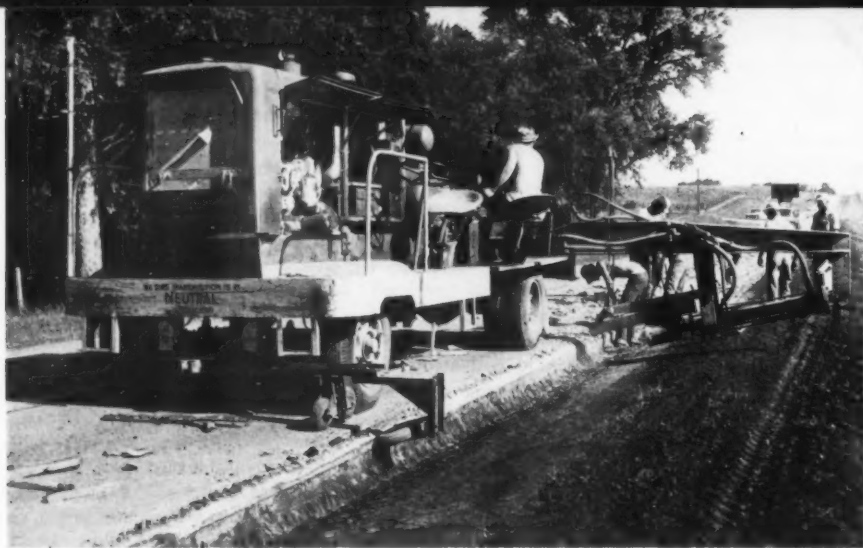
Shots rock—Time studies proved to Cummings-Roberts, Montana, that this 2 3/4 yard Michigan would outproduce other loaders in both pit-run and shot-rock, despite narrow benches, altitude.



Breaks, loads concrete—On New York City street repaving job, Triboro Asphalt Co. breaks and loads 4 to 6-inch concrete slab with this 133 hp Michigan Model 175A.

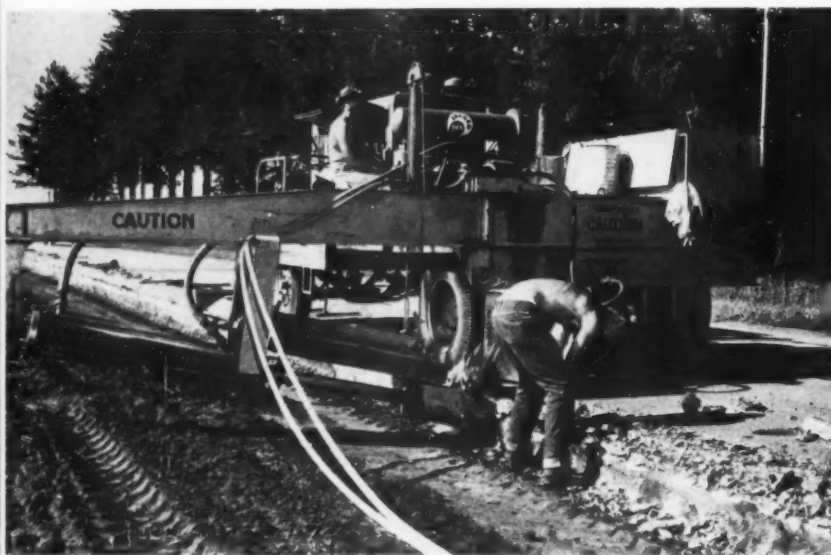


Iowa state commission of pavement widening



Widening of one of the 18 to 20-foot concrete roads under phase one of the program starts as a one-man-operated Armstrong curb breaker chips off the old lip curbs to a 3-inch depth. The wheel riding the edge of the pavement steers the machine.

Powerful curb breaker and fast slip-form paver keep train moving as first part of Iowa's three-phase widening program continues



Concrete shatters under the impact of the hammer, which is driven against the edge of the pavement by the air cylinder on the extended arm. The machine, powered by a Jaeger 365-cfm compressor, is striking about one blow per foot along this stretch.



The Cat No. 12 motor grader that follows uses a Domar trench attachment to cut the grade 10 inches below the top of the pavement and slope the trench toward the ditch to compensate for the crown of the pavement.

After workmen trim the remaining pieces of concrete with paving breakers, this Jaeger Load-Plus tractor-shovel transfers the broken concrete to one of the dump trucks hauling to a waste area.



Phase one of Iowa's three-phase pavement-widening program on old 18 and 20-foot-wide concrete pavements is continuing this season and for at least another. This year it is being followed by phase two and phase three.

Phase two, the bituminous resurfacing of the pavements widened under the first phase, advanced at a rapid rate last season under a series of contracts. Altogether, 491 miles of this work has been finished. It will continue at a rate of about 500 miles per year until the program is complete.

Phase three, the regrading of shoulders, ditches, and backslopes, is being started this year. Since the widening has left most of the roads with inadequate shoulders, the regrading program is being started before the first two phases of work are complete. The Iowa State Highway Commission plans to let contracts this year for the regrading of 70 miles of the roads already widened and surfaced.

The widening of bridges and other structures has been another major element of the work, although it is actually included in the first phase. Many bridges have been widened or replaced, and innumerable culverts and other drainage structures have been extended or modified. This is being done simultaneously with the other work.

During the past two years, the cost of the program has exceeded \$15 million per year, which represents a substantial part of the annual highway construction budget of



Coarse and fine aggregates are charged to the Butler 66-yard, 3-compartment bin by a Lorain crane with Owen 1 1/4-yard clamshell. Extra cement storage is provided by the 400-barrel silo, right.

(Continued from preceding page)

pelled concrete saws with Clyde and Clipper diamond blades, cut through 1 1/2 inches of bituminous surfacing and 1 1/2 inches of concrete on a line 7 1/2 inches in from the edge of the pavement. A 4,000-gallon water tank truck accompanied the sawing crews to supply the saws with water. A Clipper 25-hp saw was used for emergency standby.

The old lip curbs built on the edges of the pavements to control drainage on grades were not continuous. The average of 0.6 mile of lip curb per mile of pavement had drainage struc-

tures to lead water over the shoulder and into ditches.

While the sawing crews were at work, a subcontractor broke up and removed the drainage structures along one side of the road. Since traffic had to be carried through the job, work was restricted to one side of the road at a time. Only sawing crews were able to work on the second side until the first one was opened to traffic.

Break off lip curbs

To make room for the curb breaker, a Caterpillar No. 12 motor grader bladed some of the shoulder material away from the curbs. This was the first rig in a spread that rarely stretched out more than two miles along the road.

The Armstrong curb breaker, the second machine in line, struck the edge of the pavement a blow about every foot as it moved along. This removed the lip curb down to the 3-inch depth of the saw cut.

The contractor had one of the latest models of the Armstrong curb breaker, powered by a Jaeger 365-cfm compressor. The big machine is propelled by an air motor, and its powerful hammer is also air actuated.

This rig was equipped with an ingenious self-steering device so that it could be operated by one man rather than the usual two. The device consisted of an arm attached to the steering mechanism and projecting out over the edge of the pavement. A small wheel mounted in a horizontal position on the end of the arm rode on the exposed edge of the paving slab. This wheel followed the edge of the slab and actuated the steering mechanism to keep the rig running parallel to the edge.

As the lip curb was removed to a 3-inch depth, a minimum of trimming had to be done by the two workmen who followed the breaker. They used Thor hammers powered from the compressor of the curb breaker.

As the pavement was broken, it was loaded by a Jaeger Load-Plus tractor-shovel into dump trucks hauling to waste areas.

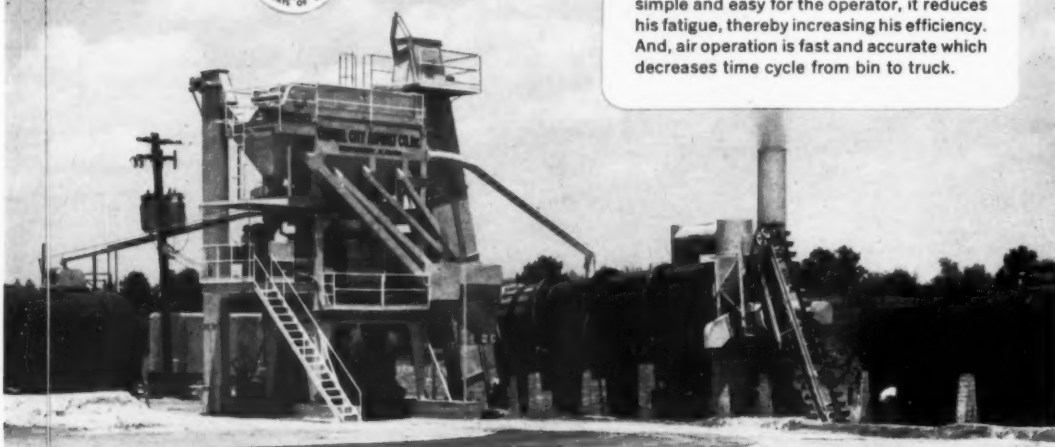
A second Caterpillar No. 12 motor grader equipped with a Domar trench attachment then cut the trench to grade 10 inches below the top of the pavement and sloping toward the ditch to compensate for the crown of the pavement. A Galion trench roller followed to compact the sub-grade in the bottom of the trench.

At driveways or crossroads, prefabricated plank bridges were dropped into the trench to permit cross traffic or property owners to continue using the road. When the paver came along, a header was inserted on each side of the bridges so that concrete would not be placed in the area they occupied. As soon as traffic was able to use the new concrete, vehicles were detoured, the

FINGER-TIP CONTROL and ECONOMY OF OPERATION ARE "STAND-OUT" FEATURES

IN OUR
MADSEN
ASPHALT PLANT

... says
CAPITAL CITY ASPHALT COMPANY, INC.
Montgomery, Alabama



**FAST,
EASY OPERATION
MEANS LESS
OPERATOR
FATIGUE**

Weighing and mixing controls in the MADSEN Model 481 Asphalt Plant are conveniently located for finger-tip action. The eight switch levers shown above electrically energize the 4-way solenoid-operated air valves which open and close the various gates and the asphalt injection. Because air operation is simple and easy for the operator, it reduces his fatigue, thereby increasing his efficiency. And, air operation is fast and accurate which decreases time cycle from bin to truck.

Owners of MADSEN Model 481 Asphalt Plants are quick to praise the fast-action, finger-tip control of the weighing and mixing operations. Capital City Asphalt Company, Inc. of Montgomery, Alabama, who own and operate the 4000-lb. MADSEN Model 481 Asphalt Plant shown above, rate this MADSEN advantage a most important factor in obtaining maximum daily production. After completing a contract calling for 25,000 tons of hot mix for city streets, this well-known contractor says "our MADSEN Model 481 gives us a very good volume of production with a minimum of operating costs."

The MADSEN Model 481 Asphalt Plant is big, oversize throughout with larger elevator, screen,

bins, weighbox, mixer and drives. The 6000-lb. plant can easily handle 180 T.P.H. on a one-minute mixing cycle, with user claims nearing the 300 T.P.H. mark. The Model 481 is available in 4000-lb., 5000-lb. and 6000-lb. batch capacities. (If purchased as a 4000-lb. plant the Model 481 may be converted to a 5000-lb. or 6000-lb. plant with only minor modification costs.)

Combine the big MADSEN advantages of easier operation, greater economy of operation, bigger day-in and day-out production with long-range, in-built MADSEN versatility, and you can see why more and more successful asphalt producers are buying MADSEN. Why not get the complete MADSEN story today.

Ask your MADSEN Distributor for Catalog No. 800 or write MADSEN Works, Baldwin-Lima-Hamilton Corporation P.O. Box 38, La Mirada, California.



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bridges removed, and the remaining gap filled.

In sections where the curb had been removed, two workmen with an air jet from a Jaeger 125-cfm compressor cleaned the old pavement of all particles of broken concrete or dirt. Then water and dry cement were placed on the broken curb section and swept with a broom to form a mortar bond. Another workman wet the edge of the old concrete slab with water supplied from the paver through a small hose. This gave the paver a smooth, clean surface to work against.

Slip-form paver

The Blaw-Knox concrete-widening machine traveled on the old pavement next to the widening trench. Wet batches of concrete were delivered by dump trucks that emptied into the hopper of the widening machine. A transverse belt conveyor carried the concrete from the hopper out to the widening trench, depositing the mix ahead of the finishing unit.

The finisher consists of a 10-inch channel slip form, 25 feet long, that rides on the subgrade but is propelled by the widening machine. The form batters out 2 inches at the bottom. Two Maginniss vibrators powered by a Maginniss generator vibrate the concrete and the form as the machine moves along.

The concrete is cut to grade by a reciprocating pan screed and finished by a drag plate of 1/2-inch steel. A burlap drag applies the final finish. With the exception of hand-edging along the form, practically no hand-finishing is done.

The State of Iowa requires the use of an impervious subgrade paper under its concrete pavements. On this job, the contractor found it economical to substitute a sheet of Visqueen clear plastic film. The material, in the 1-mil thickness, was supplied in rolls 3 feet wide and 6,000 feet long for this purpose.

An ingenious attachment on the front of the slip-form paver carried the roll of Visqueen and laid it down on the subgrade of the widening trench as the paver moved along. This device required attention only when the paver started or stopped and when the roll was changed every 6,000 feet.

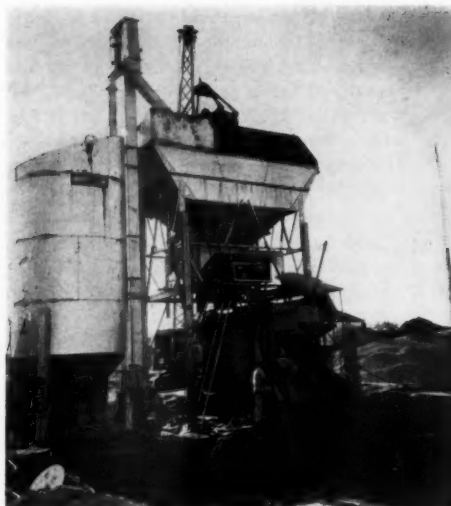
A sheet of opaque white Visqueen film was used in curing. This plastic was supplied in 5 and 6-foot widths in rolls of 3,300 and 3,000 feet, respectively. The contractor built a cart to carry and apply the film. As one workman pushed the cart along on the pavement, the film came off a roll supported on an outrigger that projected over the widening. Two more workmen placed dirt on top of the film and along the film against the outer edge of the pavement to keep the plastic down tight against the new concrete during curing.

Where there was no lip curb, the widening strip was just 3 feet wide. A Visqueen strip 5 feet wide was enough to cover the top and edge of the pavement. Where the lip curb had been removed, the strip was wider and the 6-foot width of Visqueen was required. The cart carried rolls of both widths, which could be changed quickly.

Concrete mixing plant

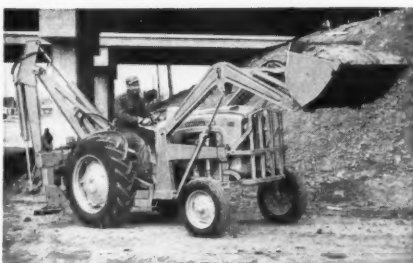
All of the concrete for this 30-mile job was mixed in a central plant
(Concluded on next page)

The all-electric plant discharges directly to a Multifoot 34-E dual-drum paver, with skip and boom removed, which chutes concrete to a truck carrying three 37.4-cubic-foot batches per load.



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EITHER
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Ditches at the base of a steep slope can be mean digging — but they are all in a day's work for the new Davis 210 Back-hoe. This unique equipment is the only machine in the world — outside of a man with a shovel — that can dig flush — that is, right next to a wall, building, or at the base of a steep slope where a tractor can't sit level. An exclusive rotary hydraulic boom swing cylinder along with three interchangeable mounting points on the frame make it all possible. This permits you to dig directly from behind either tractor wheel . . . or from the center . . . and it gives you 200° continuous arc with smooth starts and cushioned stops. Add all the other features of Davis — such as 7,000–10,000 pounds of breakaway, vertical design, independently controlled hydraulic stabilizers . . . five-minute detachability — and you can readily see why you will make more money and do the job faster when you have a Davis! Back-hoe is available truck mounted.

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INDUSTRIAL DIVISION

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which set up at two locations. The first 15 miles of the job was handled from a setup at La Porte City, and the remainder of the work was done from a setup at Vinton.

A push-button weighing system and a clever mixer arrangement made it possible for one man to handle all operations of the plant. Aggregates and cement were fed to the three compartments of a Butler 66-yard elevated bin. Two compartments were used for the two sizes of aggregate and the third for cement. A 400-barrel cement silo provided auxiliary storage capacity.

The aggregates were delivered by truck and raised to the bin by a Lorain crane with an Owen 1¼-yard clamshell bucket. The cement arrived by rail and was handled directly from

the cars to storage by a Butler cement screw and bucket elevator.

Set up under the bin was a Multi-foote 34-E double-drum paver with its skip and boom removed. The dry materials flowed from the batch hopper directly into the paver drum. Water from the municipal supply was automatically proportioned and added to the mix.

The concrete discharged from the paver into the dump boxes of waiting trucks. Each truck hauled three of the 37.4-cubic-foot batches per load.

With the push-button weighing system, the plant operator merely started the cycle. Then he turned his attention to the mixer controls as the batch was being weighed. When he was ready for a new batch, he just tripped the gate release and the

materials were in the paver. The all-electric plant, except for the paver, was powered from a Caterpillar D311 generator set.

As many as 20 trucks were used on the longer hauls. With a limit of 30 minutes permitted for the haul and laydown of the concrete, close coordination of the entire setup was required.

When the concrete had cured four days, the strip was opened to traffic. The contractor was then able to start the same type of operation on the opposite side. The final operation called for the shoulders to be reshaped to match the edge of the new pavement. These shoulders are usually inadequate after the pavement has been widened, but the third phase of the program—the re-

grading of the section—will correct them.

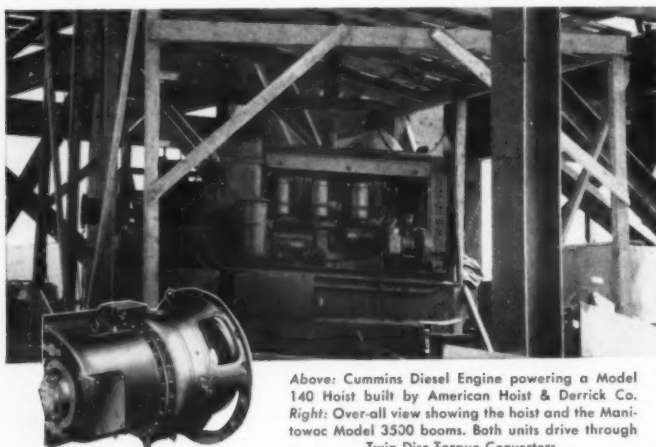
With long sections of the work exposed to traffic most of the time, it was particularly important that motorists be warned of the dangerous driving conditions. Green used about 100 Safe-T-Flares and 350 wood barricades and kerosene flares. Most of these consisted of a sign reading "Open Trench" with two Safe-T-Flares and two reflectors built into the face of the sign. Supported on integral horses, the signs were placed in the open ditches and along the edge of the pavement.

The entire setup was geared for high-speed production, and it accomplished just that. In a 12-hour working day, the crew laid more than 9,600 linear feet of the widening strip. In a 6-day week of average conditions, the crew placed about nine miles of the widening strip.

Personnel

Supervising the operation was a staff headed by superintendent Fred Endresen and including plant foreman Fred Dahlin, concrete-laydown foreman Jim Miller, curb-removal foreman Delmar "Red" Pardie, and sawing foreman Ralph Butler. Weldon Green, an officer of the firm, was on the job a good deal of the time to lend his personal assistance to the project.

The resident engineers for the Iowa State Highway Commission on the project were D. L. Smith and Charles Fisher. The chief inspector was James Smittkamp. THE END



Above: Cummins Diesel Engine powering a Model 140 Hoist built by American Hoist & Derrick Co. Right: Over-all view showing the hoist and the Manitowoc Model 3500 booms. Both units drive through Twin Disc Torque Converters.

How heavy-duty torque converters lend "gentle touch" to steel erection

At ALCOA's Warrick Works, now under construction near Evansville, Indiana, bystanders are daily witnessing two steel erecting machines performing with all the grace of an accomplished ballet dancer . . . and doing it with loads up to 29 tons!

The machines are part of the equipment operated by John F. Beasley Construction Co., Chicago. One is a Model 140 Hoist manufactured by American Hoist & Derrick and equipped with a Cummins Diesel Engine and a Twin Disc Three-Stage Torque Converter. The other is a Manitowoc Model 3500 erecting crane with a Caterpillar D17000 Diesel Engine and a Twin Disc Three-Stage Torque Converter.

The two erecting machines are working on 16-story structures for a power plant. The work requires very delicate steel setting . . . such as setting 17-ton cross members between columns and then, with a steel ball weight, gently tapping them into place.

As E. J. Delahousay, of John F. Beasley Construction Co., puts it: "With Twin Disc Torque Converters, you can swing fast . . . and lift without fear of engine stall. They make the machines handle easier and enable the operator to place his load just where it has to go!"

Twin Disc Torque Converters are excellent for delicate holding and inching of loads through simple throttle manipulation. Besides this, however, they prove their worth in many ways . . . such as permitting engines to operate in their most efficient speed range at all times, with full hp output available whenever required . . . automatically matching engine torque to load requirements . . . cushioning out destructive shocks and vibrations between driving and driven equipment . . . and holding constant tension on cables, for greatly increased cable life.

Be sure to specify a Twin Disc Torque Converter with your next new excavator, crane or hoist. They are available in both three-stage and single-stage designs . . . from 30 to 1000 hp in capacity.

Twin Disc Clutch Company, Racine, Wisconsin; Hydraulic Division, Rockford, Illinois.



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Air conditioning topic of new textbook

Designed for college courses at the senior or junior level, "Air Conditioning" gives students a complete introduction to all aspects of air conditioning, including heating, ventilation, air purification, and cooling. Written by Willis R. Woolrich and Willis R. Woolrich, Jr., the book is available from the Ronald Press Co., 15 E. 26th St., New York 10, N. Y.

Chapters in the book discuss thermodynamics, psychrometrics, and load determination; fuels, combustion, and heating systems; refrigeration, cooling systems, and all-year systems; distribution systems, instrumentation, sound control, and filtration. Formulas, charts, diagrams, and tables supplement the written material. A list of problems appears at the end of each chapter. The book is priced at \$7.50.

Work starts on new mill for Leschen Wire Rope

Construction has started on building alterations and extensions for a new wire drawing mill at the Leschen Wire Rope Division of H. K. Porter Co., Inc., St. Louis, Mo. Portions of two existing buildings are being connected and an extension will be constructed.

The \$1,700,000 job is expected to be completed by September, and the mill is scheduled to be in operation in December.

CONTRACTORS AND ENGINEERS

WAGNER TRACTOR - 4 Wheel Drive

DIVERSIFIED USES vs SINGLE PURPOSE MACHINES



Model IND-18 shown above features dual controls for compacting both directions without turning. Note patented cleaner rings.

DOZE and COMPACT AT SAME TIME WITH INTERCHANGEABLE STEEL COMPACTION WHEELS

WAGNER COMPACTORS —

WAGNER TRACTORS are now available with easily and quickly interchangeable wheels which convert standard tire mounted tractors to heavy duty 50,000 lb. or 60,000 lb. compactors.

Rubber tire wheels and steel compaction wheels are interchangeable, giving the road contractors a prime mover with multiple use for compacting, dozing, towing sheepfoot, water wagons, and self-loading scrapers.

Two models, IND-14 and IND-18, accommodate the compaction wheels and are driven by planetary gears powered by 160 and 220 hp. Cummins Diesel Engines respectively.

IND-18 also features dual controls and a reversible operator seat. The operator does not have to turn it around for any operation, of special advantage for compacting. Just swing the seat around and begin driving the machine with a second set of controls. Same speeds and power in either direction.

The Wagner Tractor with compaction wheels and optional dozer blades is capable of dozing truckdumps and compacting at same time with all wheels powered.

Demountable cabs are also available with heater and defroster for winter use or air conditioning system for hot summer weather.

WAGNER TRACTOR FEATURES —

FOUR WHEEL DRIVE—Provides 4-wheel power for the toughest, muddiest, or sandy terrain.

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Avoid legal pitfalls

Work site was flooded—was government liable?

THE PROBLEM: Plaintiff was building a power plant on a river for the Department of Interior. Upstream, defendant was building a dam for the U. S. Army Corps of Engineers. The defendant had built a cofferdam to restrain and divert waters of the river, but it had collapsed, damaging plaintiff's work. Allegedly, the defendant was negligent. The government was joined as a defendant in

plaintiff's suit for damages under the Federal Tort Claims Act. Was the government entitled to summary dismissal of the claim against it under a provision of the Mississippi Flood Control Act that the government shall not be liable for any damages by "floods or flood waters"?

THE ANSWER: No. (Guy F. Atkinson Co. v. Merritt, Chapman & Scott Corp., 126 Fed Supp. 406, decided by the United States District Court, Northern District of California.)

The court said that the statutory exemption from liability was intended to apply to widespread damage caused by Act-of-God floods and not to the consequences of artificially caused flooding, and that brought about through negligence.

In this case the complaint alleged a claim belonging to the latter class. The case should not be summarily dismissed but should be tried to determine whether the negligent cause could be proved.

The court also refused to dismiss the claim against the government on the independent ground that the Tort Claims Act also exempts the government from liability for losses resulting from the exercise of discretionary authority by federal officials and representatives. The court said that it would take a trial to determine whether the decisions involved in the collapse of the cofferdam had been made by the government and whether the building of the cofferdam involved legislative or

executive discretion, or "a 'mere job of work' incidental to the discretionary decision to construct the whole project."

Edited by A. L. H. STREET Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

Injured employee wins compensation award

THE PROBLEM: A contractor furnished a crane to be used in the construction of a building. He agreed also to supply the services of an oiler. The general contractor's tagman, who was directing the handling of concrete buckets, negligently gave incorrect signals which resulted in an injury. A bucket struck the oiler on the head and knocked him to the ground. The 39-year-old oiler sustained compound fractures of the right leg and shoulder injuries, in addition to other injuries. He was hospitalized for 445 days, kept in casts for six months, and suffered intense pain. Blood transfusions were necessary, and his right leg was rendered useless. Hospital and medical expenses at the time of the suit totaled \$8,000, and further medical expense would continue for an indefinite time. Since the time of the accident, the oiler had lost \$10,000 in wages. He had a life expectancy of 33.2 years and had good prospects for increased earnings totaling \$75,000 or more, on a basis of employment until age 65. Could a \$150,000 damage award against the general contractor be considered excessive?

THE ANSWER: No. (Houlihan v. Turner Construction Co., 139 Fed. Supp. 88, decided by the United States District Court, District of Rhode Island.)

The decision is subject to review on appeal to a higher court and possible reversal or modification as to the amount of damages to be allowed. But because damages awards are gaged by the dollar's decreasing purchasing power, the particular award seems to justify contractors in checking up on the sufficiency of their liability insurance.

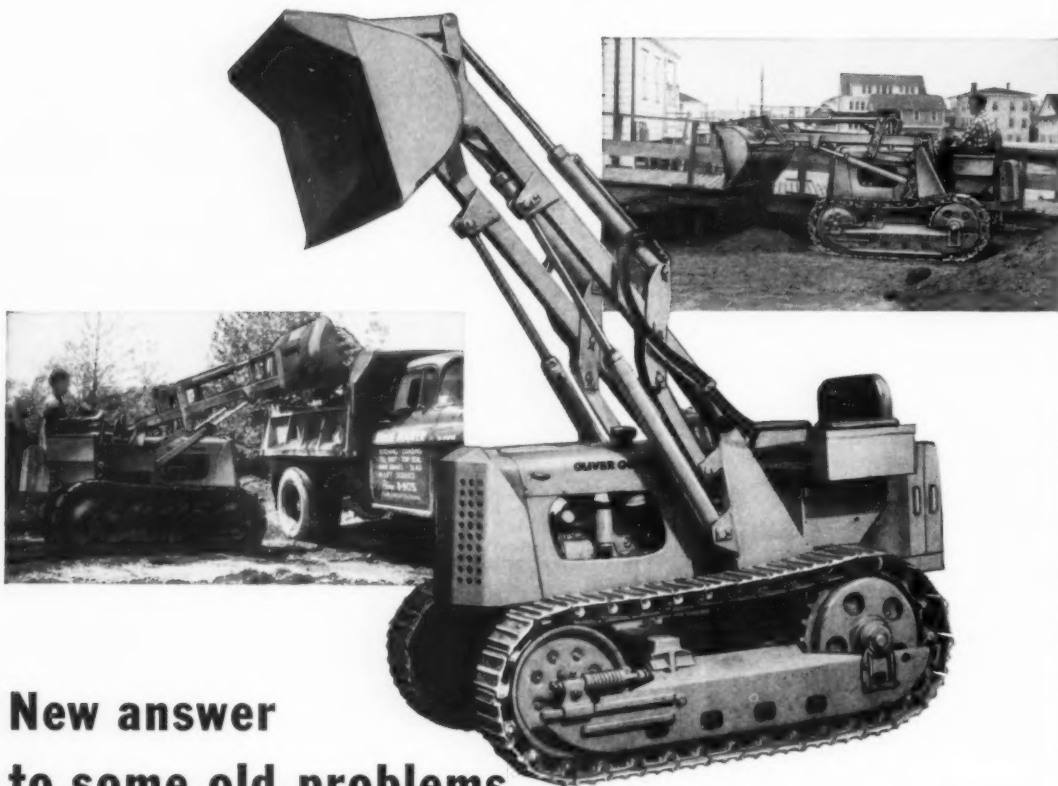
Licensing law not violated

THE PROBLEM: Arizona statutes prevent an unlicensed contractor from suing for payment for his work. A partnership of licensed contractors undertook a job, but did not complete it, since the firm was dissolved by agreement. It was agreed that one member of the firm—not individually licensed—should complete the work on behalf of the firm. Was he entitled to compel payment for the work?

THE ANSWER: Yes. (Rosen v. Hadden, 303 Pac. 2d 267, decided by the Arizona Supreme Court.)

The court applied the general rule of law that a partnership is deemed to continue after dissolution for the

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Geared for tomorrow's jobs with these work-speeding features:

- 4-speed transmission adds flexibility and a faster work cycle
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purpose of winding up its affairs. The court also decided that the state Registrar of Contractors could revoke or suspend a license only upon a ground specified by statute, and then only after a hearing of charges of a violation.

Agreed time limit for suing upheld

THE PROBLEM: A standard clause in New York City construction contracts, Par. LIV, states that no suit shall be brought against the city on a claim growing out of a contract unless it started within one year after filing a final certificate of performance in the comptroller's office. Was this provision enforceable against a sewer contractor who, after the one-year limit had expired, sued the city for damages based on increased costs accrued in excavation at a site other than that indicated by the specifications and in removing trolley tracks and ties at another site which were not shown by the specifications?

THE ANSWER: Yes. (Soviero Bros. Contracting Corp. v. City of New York, 142 N. Y. Supp. 2d 508, decided by the New York Supreme Court, Appellate Division, First Department. This vacates a decision to the contrary reached by a lower court, 136 N. Y. Supp. 2d 841.)

The court strengthened its decision by mentioning that the contractor knew all the facts upon which the suit was based for three years before suing, and yet he took no steps to cancel the contract.

The court noted that the case was to be differentiated from cases where contracts are so worded as to wholly excuse one party from responsibility for false representations. A reasonable time limit fixed by agreement will be upheld, even though it is shorter than a statutory limit that would have applied except for the agreement.

City's claim for defects not barred in sewer job

THE PROBLEM: A municipal sewer construction contract specified that neither final payment nor the contract should relieve the contractor from liability for negligent or faulty workmanship or materials within the extent and period provided for by law. The contract also stated that on written notice, the contractor would remedy the resulting defects and pay for any resulting damages which might appear within one year after completion and acceptance of the work. Did that relieve the contractor from liability for defects disclosed after the one-year period due to negligent construction or faulty materials?

THE ANSWER: No. (City of Momence v. Burnett, 138 N. E. 2d 815, decided by the Illinois Appellate Court, Second District.)

The court said that suit for damages could be started within a statutory time limit dating from the discovery of the contractor's neglect. This was so even though the city engineer, who prepared the plans and

specifications placed a contrary interpretation upon the contract.

Trucking company liable for driver's negligence

THE PROBLEM: A structural-steel haulage contract required delivery at a job site, and unloading by the construction contractor. When a truckload arrived at the site, the truck driver, instead of waiting until the contractor's employees could put a strain on the load with hoisting apparatus, negligently opened the chains that bound the load to the truck. Some of the steel fell on the plaintiff, an employee of the construction contractor. At the trial of plaintiff's suit for damages against

the haulage contractor, did the evidence justify an award against the defendant?

THE ANSWER: Yes. (Stone v. Bigley Bros., Inc., 127 N. E. 2d 913, decided by the New York Court of Appeals.)

The court said that the mere fact that the construction contractor had agreed to unload the steel did not necessarily make the driver—a regular employee of the haulage contractor—momentarily an employee of the construction contractor when he unloosed the chains on his own truck.

Court holds union ruling was not monopolistic

THE PROBLEM: The government sued a trade association of plastering

contractors, a local union, and its president, charging that they had conspired to violate the Sherman Anti-Trust Law. The suit was based upon the existence of a contract between the association and the union to the effect that the original contractor for plastering should do all the work and not sublet any part of it. The purpose of the contract was to prevent beneficial subcontracting of ornamental work to a rival union. Were the defendants guilty of illegal conspiracy?

THE ANSWER: No. (United States v. Employing Plasterers Association of Chicago, 138 Fed. Supp. 546, decided by the United States District Court, Northern District, Eastern Division.)

This decision, which is subject to



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As competition gets rougher for the profitable Turnpike contracts, you need a plant that can supply specification aggregate in the schedule-beating quantities demanded . . .

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avoid legal pitfalls

possible appeal and reversal by the United States Court of Appeals or the Supreme Court, is based upon a finding by United States District Judge Perry that there was no proof of a conspiracy to discriminate against or harass plastering contractors or out-of-state employees.

Subcontractor's duty to clean up work site

THE PROBLEM: A general contractor's cement finisher on a hospital building job was injured while walking in the basement. He stumbled

over a piece of pipe on the floor that had been left there by a plumbing and heating subcontractor after completing installations and undertaking to remove litter. Was the subcontractor liable in damages to the injured man?

THE ANSWER: Yes. (*Ignagni v. A. J. Peters & Son*, 305 Pac. 2d 953, decided by the California District Court of Appeal, First District, San Francisco.)

The court said that, considering all of the facts and circumstances, a jury had a right to decide that the subcontractor should have foreseen that such an accident could happen and that the injured man did not neglect to use reasonable care for his own safety.

Sub's lien rights

THE PROBLEM: A New Jersey statute makes it a criminal offense for a general contractor to disburse money received on a private building contract without first paying labor and material bills. Such money is declared to be a trust fund for the benefit of such creditors. Did this statute permit a subcontractor to sue the general contractor for damages?

THE ANSWER: No. (*Plevy v. Schaedel*, 130 Atl. 2d 910, decided by the New Jersey Superior Court, Law Division.)

The court said that legislative intent not to give a right to sue was indicated by the fact that, as applied to private building contracts, no such right was specially given. Statutes

covering public construction contracts explicitly make the contractor liable both to prosecution and civil suit for damages for wrongfully disbursing funds without first paying labor and material claims.

Crane lessee was liable for repairs

THE PROBLEM: A California statute provides that a lessor of personal property must put it in fit condition for use, and repair all deteriorations not due to the lessee's fault. If the lessor fails to make the repairs the lessee may do so at the lessor's expense. A leased crane broke down due when used for a purpose not contemplated by the lessor. Was the lessee liable for the repair cost?

THE ANSWER: Yes. (*Riskas v. De La Montanya*, 302 Pac. 2d 821, decided by the California District Court of Appeal, First District, San Francisco.)

Material supplier's lien

THE PROBLEM: The Miller Act requires a contractor on a federal job to give a bond for payment of materials used. Does the Act make the surety liable for materials furnished the contractor but not used by him on the particular job, if the materials replaced identical items withdrawn from the contractor's inventory for use on the job?

THE ANSWER: Yes. (*Fourt v. United States*, 235 Fed. 2d 433, decided by the United States Court of Appeals, Tenth Circuit, upholding a judgment by the United States District Court for the Western District of Oklahoma.)

Written approval was unnecessary for extras

THE PROBLEM: A subcontract for excavation and site development on a housing project specified that no allowance should be made for extras unless first approved in writing by the contractor. The contractor directed the subcontractor to do certain work not called for by the subcontract. Did that waive the clause requiring written approval?

THE ANSWER: Yes. (*Wexler Construction Co. v. Housing Authority of Town of Norwich*, 128 Atl. 2d 540, decided by the Connecticut Supreme Court of Errors.)

Injury to contractor's man not owner's liability

THE PROBLEM: A pipeline company contracted for replacement of a defective section of its line. The contractor's employee was injured by a cave-in of a bellhole constructed by the contractor. The owner had not retained any control over that construction. Was the pipeline company liable to the injured man or bound to reimburse the contractor's surety for workmen's compensation paid to the injured man?

THE ANSWER: No. (*Houston Pipeline Co. v. Peddy*, 292 S. W. 2d 364, decided by the Texas Court of Civil Appeals, Galveston.)

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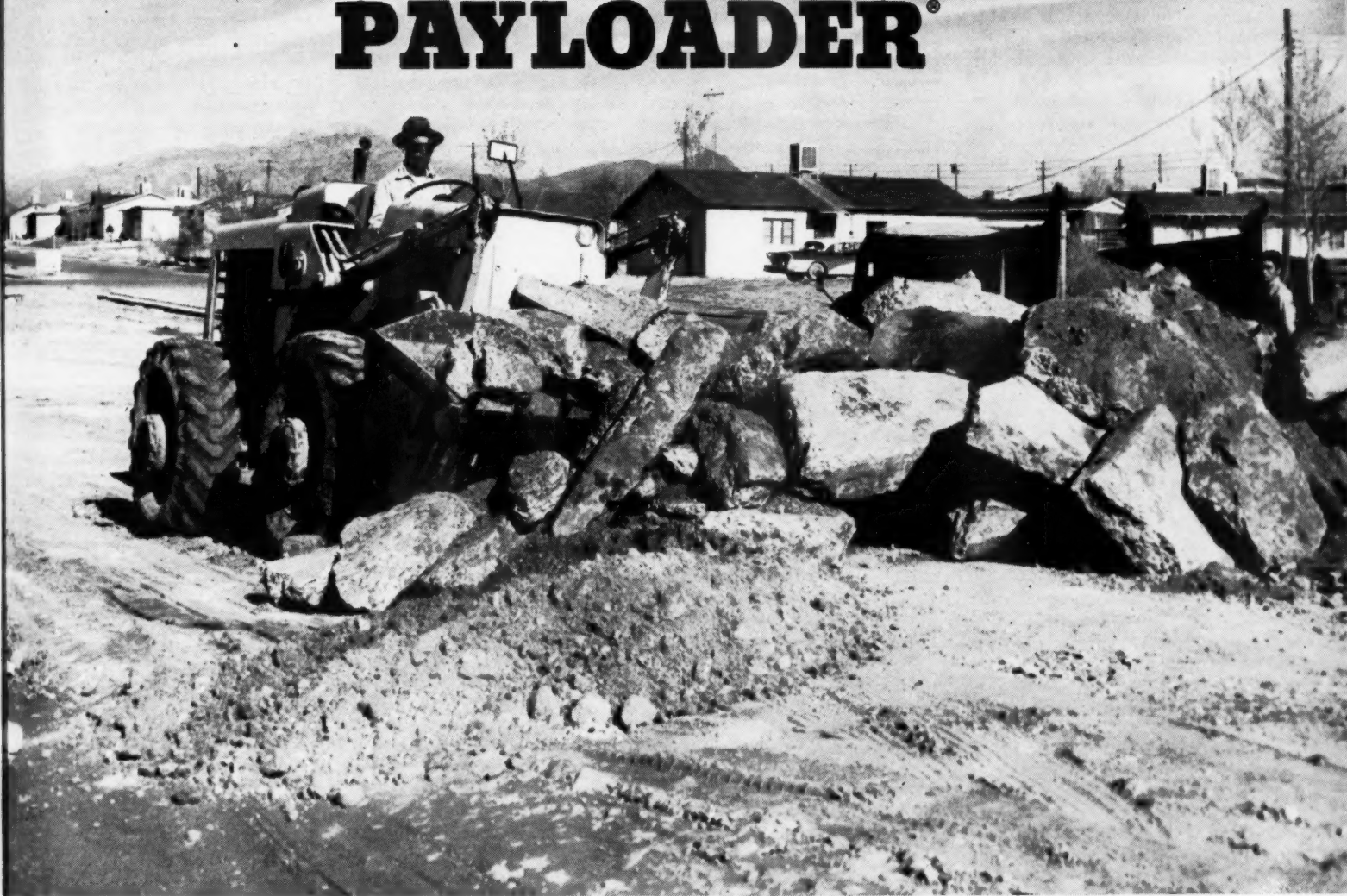
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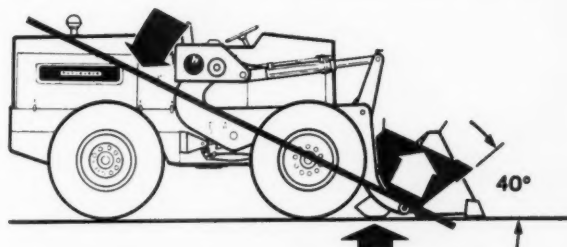


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It takes *real digging power* to break-up and pry-out the 10-inch-thick concrete slabs . . . something like the exclusive *bucket action* on a "PAYLOADER" that combines powerful pry-out force with 40° bucket tip-back at ground level.

Add this superior digging power to the other outstanding performance features found in the new "PAYLOADER" models — hydraulic load-shock-absorber . . . power-transfer differentials . . . "no-stop" power-shift transmission . . . planetary final drives . . . power-steering and 4-wheel power brakes — and you'll know why a "PAYLOADER" digs-in and out-produces any wheeled tractor-shovel of comparable size. Your "PAYLOADER" Distributor is ready to prove this performance by having you *try one on your work*. Call him today.



Tremendous pry-out force — almost equal to the weight of the machine — can be exerted at the bucket digging edge by using the break-out pads on the bottom of the lifting arms as a ground support or fulcrum.

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labor review

Growing numbers of construction workers in the east and south were taking enforced vacations as the continuing strike of cement workers ground construction activity to a slow halt.

The pinch in one state, New Jersey, led Paul J. Brienza, managing director of the Building Contractors Association of New Jersey, to call on President Eisenhower to invoke the provisions of the Taft Act giving him authority to appoint a Board of Inquiry to look into any strike that imperils the national welfare.

In his telegram, Brienza wrote: "The Building Construction Indus-

try in New Jersey as well as many other sections of the United States, is substantially and critically affected by the strike of employees of cement-producing companies. Hospitals, schools, and industrial plants needed in defense work are being seriously delayed. Tens of thousands of building trades employees are facing a prolonged lay-off. The Building Contractors Association of New Jersey, representing more than 500 members in the construction industry in the State, respectfully urge appropriate action by you under authority of Public Law No. 101, Title Two, Section 206. (The Taft Act.)"

Out since early July, striking iron workers and sheet metal workers went back to their jobs in New York City under new three-year agreements signed by their unions and members of the Building Trades Employers Association.

Some 28,000 sheet metal workers received an immediate 15-cent boost in hourly pay and new travel and board allowances. The contract, negotiated by Sheet Metal Workers Local 28, calls for automatic increases which will add 60 cents to the hourly rate over the next three years.

The initial 15-cent increase is retroactive to July first. On January

1, 1958, rates go up 10 cents; 10 cents more is due on July first of next year; another 10 cents takes effect at the beginning of 1959; and 15-cent hikes are promised on July 1, 1959, and January 1, 1960. The journeyman scale is now \$3.90; it will have climbed to \$4.50 by the time the contract expires in 1960.

New travel and subsistence provisions call for travel pay of \$3 a day for work in areas adjacent to Local 28's jurisdiction.

Fringes are unchanged in the new pact.

The Iron Workers settled for a package valued at slightly less than 70 cents. The union's old rate of \$3.75 was raised 15 cents from July first; 10 cents is to be added on July 1, 1958; 10 cents more on January 1, 1959; and a final 15 cents comes into play July 1, 1959.

On January first of next year the present 3 per cent plus five cents an hour health-welfare and pension fund payments will go to a flat 5 per cent, and the union's benefit fund contribution will be increased from 3 to 4 per cent. On July 1, 1958, the benefit fund contribution will be increased to 5 per cent.

...

Outlays for new construction during June rose at a faster-than-seasonal pace to \$4,354 million, a new record for the month.

The rate of spending during June, figured on an annual basis and adjusted for seasonal factors, was \$47,268 million. This represented an all-time peak rate for any month and marked the first time that the annual rate topped the \$47 billion mark.

The new monthly and annual rate records stemmed from sharp gains in the public sector. Spending for private projects rose about seasonally.

In the first half of this year, outlays for projects of all types—both public and private—were at an annual rate of \$46.8 billion, compared with actual expenditures of \$46.1 billion in 1956. The rate thus far this year is running 3 per cent higher than the rate during the first half of last year.

During July, outlays were expected to top \$4.5 billion, which would be an all-time high for any month. Biggest gains were again expected to come in the public sector, particularly in roadbuilding.

...

The National Society of Professional Engineers, at its annual meeting in Dallas, Texas, took exception to the building trades' joint scheme for amending the Taft Act. The engineers' group insisted that any certification without election plan will not include professional employees of construction contractors.

An amendment introduced by Senator H. Alexander Smith (R., N.J.) for the Administration would permit the National Labor Relations Board to certify unions to represent em-

ployees of contractors as now required by the Act. Section 10 of the National Labor Relations Act provides for election of representatives for purposes, and NSPE.

AFL and in 22 states national merger is formalities. Two minority members and Mary In both cases to be appointed groups be can be held. In New ment, dra conference two state dency of t retary-tre state Indu chairman cally come chairman AFL group. The Ma three grou land, ano a joint AL tive Board ment.

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When your spotting system is arranged to take full advantage of the Eimco 105 Excavator's ability to complete a cycle without turning... its loading capacity per \$ of investment and maintenance can exceed that of conventional loaders or boom shovels by as much as 400%.

EIMCO 105 TRACTOR MOBILITY GETS EXTRA CAPACITY

Power shifting... operating simplicity... independent track reversal... forward operating position... low center of gravity...

are five important reasons why the Eimco 105 Tractor gets "extra" performance from its overhead or front-end loaders.

Eimco Unidrive, power-shift transmission combined with torque converter fluid drive, saves seconds every cycle and eliminates downtime due to burned facings or other clutch troubles. Without taking your left hand from the wheel, you simply manipulate power-shift levers for high, low, forward, reverse while the tractor is moving under full load. There's no reaching, no gear clash, no hesitation.

Independent track reversal is especially advantageous in front-end loading. It permits this 105 to pivot sharply from the muck pile and get material into trucks faster. It gets either loader out of trouble quickly... a big factor on hazar-

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B 276

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employees of building and construction contractors without a prior election as now required by Section 9 (b) (1) of the Act.

Section 9 (b) (1) also entitles professional employees to a separate election to determine whether they wish to be included with non-professionals for collective bargaining purposes, and this is the thing that bothers NSPE.

AFL and CIO groups have merged in 22 states so far, according to the national AFL-CIO organization, and merger is completed except for final formalities in a 23rd.

Two more areas drew up preliminary merger agreements—New York and Maryland-District of Columbia. In both cases, the agreements have to be approved by the AFL and CIO groups before a merger convention can be held.

In New York the merger agreement, drawn up after eight hours of conference by committees from the two state groups, gives AFL the presidency of the merged group. The secretary-treasurer will come from the state Industrial Union Council. The chairman of the board will automatically come from IUC. The legislative chairman will come from the state AFL group.

The Maryland-DC merger involves three groups—a CIO group for Maryland, another for the District, and a joint AFL group. The CIO Executive Boards have approved the agreement.

A new job was taken on by the international office of the Iron Workers in order to meet the flood of demands for skilled workmen.

Local unions are being asked to supply headquarters with a list of unemployed members and their particular skills on the first and fifteenth of each month. From this information, the International will compile and maintain a current file of available craftsmen so that they may be quickly floated into any area where jobs cannot be filled locally.

According to a union spokesman, requests from employers are at an all-time high. The new system, he believes, will greatly speed up the International's ability to man construction jobs.

The AFL-CIO Building Trades Department constitution is due for a major overhauling at a special convention in Atlantic City on August 5. Department president Richard Gray says the main purpose in revising the constitution is to bring it into conformity with the AFL-CIO constitution.

A draft of the new constitution has been approved by the department's executive council and general presidents. It was drawn up by a five-man committee from the council.

Among the proposed changes is one which would greatly increase the

number of delegates to the department's conventions.

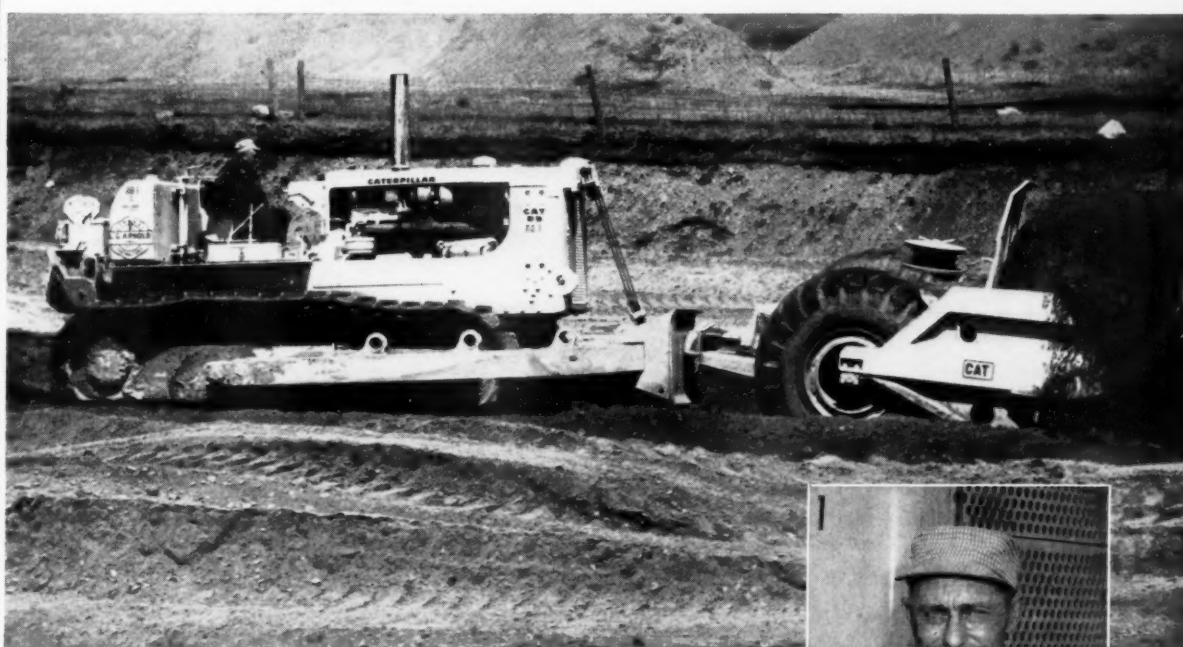
Richard J. Mitchell, executive vice president of The Trimble Company, a Pittsburgh, Pa., construction firm, was selected as **chairman of the National Joint Board** for the Settlement of Jurisdictional Disputes. Mitchell

has been an employer representative on the Joint Board for six years.

Mitchell succeeded John T. Donlop, chairman since 1948.

According to a statement issued by the Joint Negotiating Committee representing AFL-CIO's Building and Construction Trades Dept., the Associated General Contractors of

America, and the national specialty contractor associations which sponsor the Board, negotiations are continuing for "changes in the Board's agreement and procedures which will simplify its operations and are expected to eliminate many of the disputes which at the present time may cause disruption of work."



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THIS D9 LOADS SCRAPERS WITH 25 HEAPED YARDS IN 45 SECONDS



Phil Dudenhofer, grade superintendent, knows from production charts that the D9 pusher loads more yards faster, at lower cost.

Working on a highway relocation job near Eau Claire, Wis., L. G. Arnold, Inc., cut cycle times and boosted yardage with a Caterpillar D9 Tractor push-loading a CAT* DW21 and No. 470 Lowbowl Scraper.

On a round-trip haul of 3 miles they averaged 100 cu. yd. per hour—4 heaped loads of 25 cu. yd. each. Loading time in the borrow pit, with the mighty D9 pushing, was an average of only 45 seconds.

Phil Dudenhofer, grade superintendent for L. G. Arnold, Inc., says: "I've got both feet right in the dirt, where I record output and performance of every machine. With the D9 as pusher, the DW21-No. 470 unit is outproducing by far any other equipment on the job."

That experience has been shared by hundreds of firms, as more and more D9 Tractors have gone to work all over the country. For fast loading you simply can't beat the D9, with its 320 HP at the fly-

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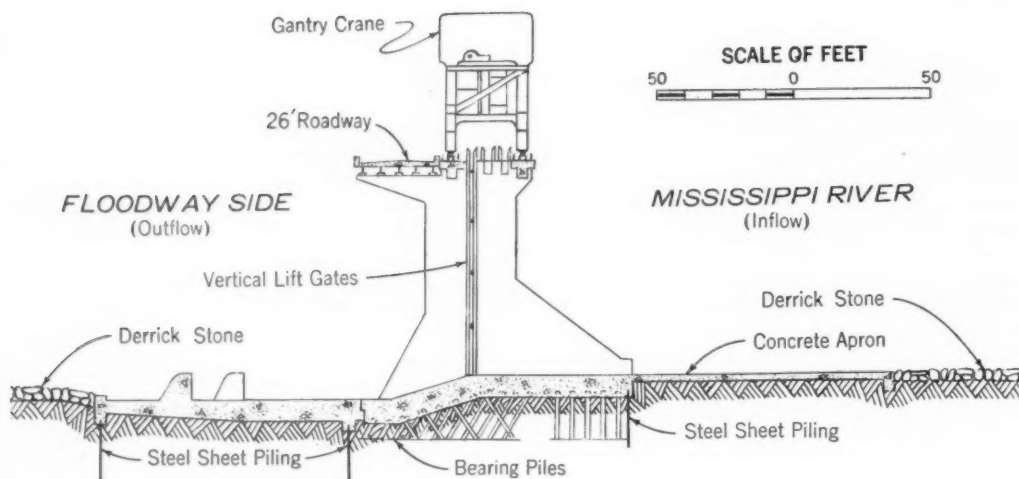
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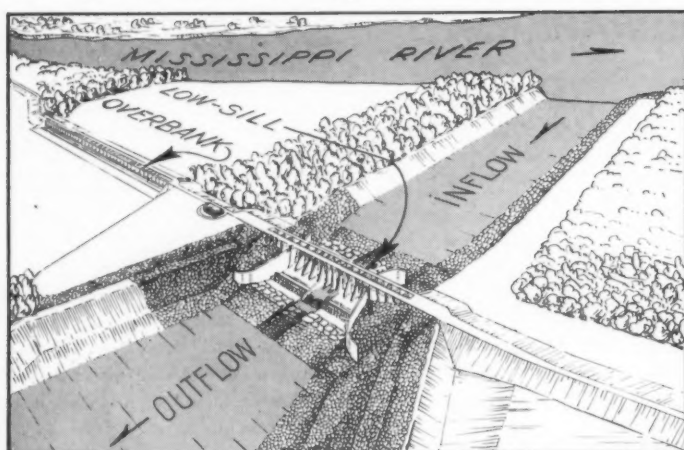
A cross-section of the low-sill control structure.

Concrete operations move swiftly Old

The 970-foot-long low-sill structure stands at halfway mark; work on keyways and relief wells starts overbank structure

(Additional photo on front cover)

This drawing shows how the low-sill and overbank structures will look on completion.



Virtually on the banks of the Mississippi River, steel and concrete are rising out of a base slab to form the piers of a low-sill structure, and drill rigs are probing 160 feet below the surface to make relief wells for an overbank structure.

Both are part of a \$73 million project, being built under the supervision of the U. S. Army Corps of Engineers, to keep "Old Man River" rolling along in his customary channel past New Orleans and into the Gulf of Mexico.

The low-sill and the overbank structures will control flows from the Mississippi River to the Atchafalaya River and Basin by way of a 7-mile man-made outflow channel. This will prevent the waters of the Mississippi from being captured by the Old River, which flows westerly from the Mississippi to the Atchafalaya River at a point some five miles south of the control structures and outflow channel.

Included in this immense control plan is an earth-fill dam, which will be built across Old River near its junction with the Mississippi. A navigation lock with east and west approach channels will be constructed also, so that shipping can continue to use Old River. In addition, the project will require 16 miles of enlarged and new levees. (See "Excavation, Clearing Prepare for Old River Control Project", C&E, October, 1956, pg. 30 and "Old Man River Will Roll Along

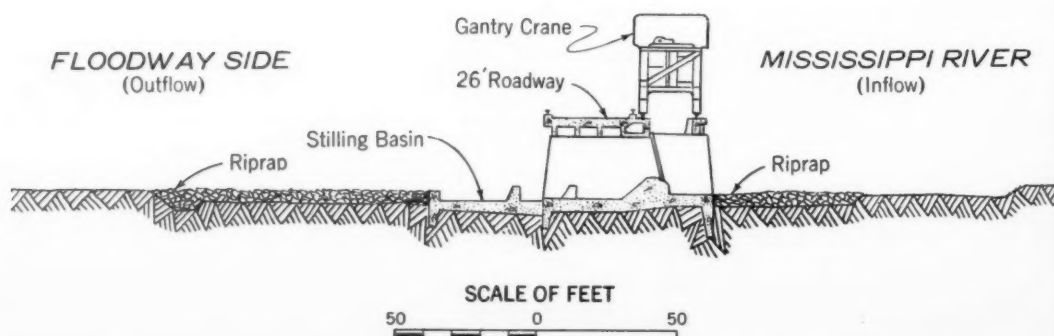
with Help from Corps of Engineers", C&E, October, 1955, pg. 100.)

Work on low-sill structure

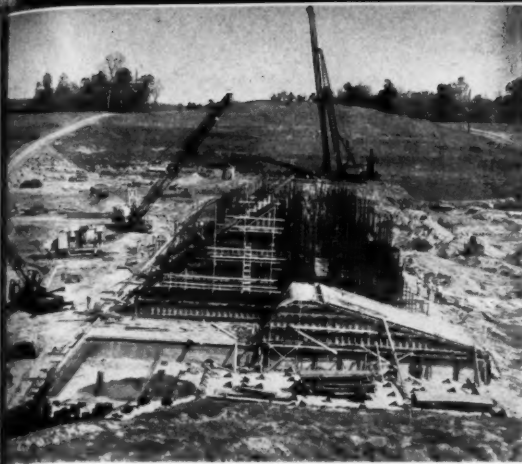
Working under a \$9.9 million prime contract, F & C Engineering Co., Houston, Texas, has completed more than 50 per cent of the low-sill structure. Most of the base slabs for the weirs have been poured, and work has started on the piers. The last of the H-beam piles was driven on the southern end of the structure to complete pile driving this past June.

The 970-foot-long low-sill structure will contain eleven gate bays, each with a 44-foot clear width between the piers. The weir crest elevation is 10 feet above mean sea level, except for the three center bays, which have a crest elevation of 5 feet below mean sea level to pass low flows. A gantry crane will ride on rails atop the structure to lift the vertical steel gates. A 26-foot roadway will form a bridge over the gate bays.

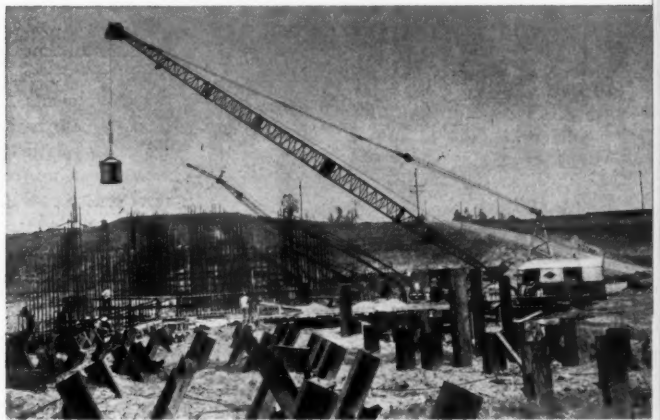
The structure is founded on 1,920 steel H-beam piles. The 14-inch piles, furnished by U. S. Steel Corp., were driven to depths varying from 79 to 131 feet, for a minimum penetration of 27 feet in clean sand. Piles driven beneath the weir and pier sections are on a 1 to 2 batter, with one row slanting downstream and the next row slanting upstream. On the upstream portion of the weir, 454 vertical piles have been driven. To handle



A cross-section of the overbank control structure.



◀ Working on the low-sill structure, left to right, are a P&H 255A that sets steel and forms, a Koehring 34-E dual drum paver that feeds the Lima 1201 placing concrete, and a Koehring 1205 that drives steel H-beams for the structure foundation.



Reinforcing is being set not far behind base-slab pours. The 14-inch H-beam piles in the foreground are on a 1 to 2 batter, one row slanting downstream, the next slanting upstream.

Old River control structures

the big steel piles, F & C used a Koehring 1205 crane rigged with 143-foot leads on a 100-foot boom. A Vulcan OR single-acting steam hammer did the driving.

The steel piles extend through a filter blanket made up of 8 inches of gravel on 6 inches of sand. After the filter blanket had been placed, it was capped with 2 inches of concrete. This comes to within 6 inches of the tops of the piles. Clay drainage pipe resting with its lower half in the filter blanket and its upper half in the concrete of the base slab, provides drainage for the filter blanket.

Forming operation

Forms for the monoliths that compose the base of the weir section rested on the 2-inch concrete cap. In this section, prefabricated 8x10-foot panels were built up of 1x6 tongue-and-groove sheeting backed by 2x6 vertical studs. Richmond coil ties ran on a diagonal line from the double 2x6 wales down to a mat of reinforcing that had been welded to the tops of the steel piles. Forms for the pier sections were made up of 2x6 tongue-and-groove sheeting backed by 2x6 studs and using double 3x6 wales.

The 9.5 million pounds of reinforcing steel for the monoliths, supplied by Laclede Steel Co. of St. Louis, was erected under a subcontract by Steel Erectors Inc. of Vidalia. Because of their large size, the steel bars were

set in place individually by a P&H 255A truck crane. The No. 18 bars, used to link the base with the piers, are 2 1/4 inches in diameter.

Concrete operations

Concrete was placed for the base of the weir section by a Lima 1201 crane with 120 feet of boom, which received 1 1/2-yard batches of concrete from a Koehring 34-E dual-drum paver. The 8-foot lift was consolidated by Master and Jackson electric vibrators. After the surface had been hand-finished, it was covered with a layer of sand, wetted, and allowed to cure for 14 days.

About halfway through the low-sill structure and the overbank structure is the aggregate batch plant and the cement plant, which keep trucks rolling to feed the paver in the excavation. A Blaw-Knox automatic batch plant delivers aggregate for two 1 1/2-yard batches to the Ford trucks. The three compartments of the plant are fed by a Koehring 605 crane using an Erie 2-yard clam. The stockpiles were made up of 1 1/2-inch rock, 3/4-inch gravel, and sand.

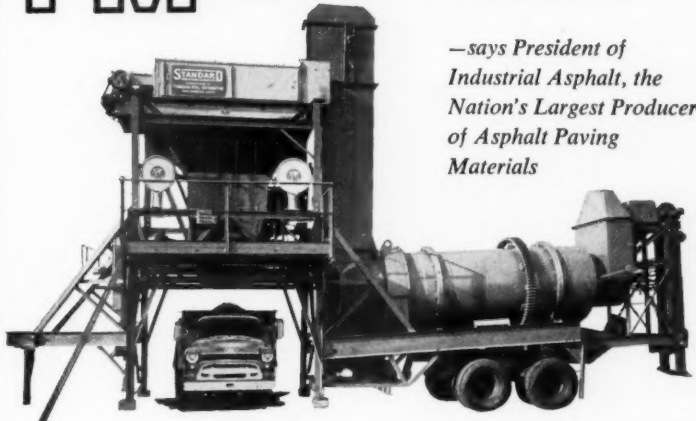
After receiving the two batches of aggregate from the Blaw-Knox plant, a truck drives under the Johnson twin batcher to receive cement. The batcher is equipped with two discharge gates to allow both compartments of the truck to be loaded at the

(Continued on next page)



An extensive dewatering system operates on the Mississippi River side of the facility as the Lima 1201 places concrete for the low-sill structure. The Griffin Wellpoint 10-inch pump working in the foreground is driven by a Waukesha diesel.

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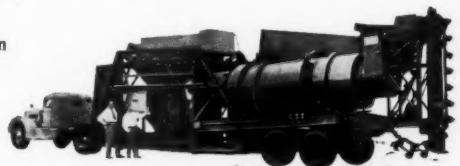
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Sheet piling to make forms for the upstream keyway of the overbank structure is driven by a Koehring 304 with a McKiernan-Terry 9-B hammer. When this is done, the enclosed ground will be excavated, reinforcing set, and concrete poured.

same time. The plant contains an overhead silo with a capacity of 373 barrels and a storage silo with a capacity of 711 barrels.

As the nearest railroad siding was over forty miles away and the one gravel road into the job was in poor condition, the Mississippi River was the logical means of transportation for the thousands of tons of cement, aggregate, and steel needed to supply the job. Rock and gravel, supplied by the St. Catherine Sand & Gravel Co., was shipped by barges from Natchez, about fifty miles away. The material was clamshelled out of the open barges by a crane and dropped into dump trucks that hauled it about a half a mile to the stockpiles adjoining the batch plant.

The cement, shipped by barge from the Ideal Cement Plant in Baton Rouge, arrived at the job in covered, 60,000-barrel barges. Dump trucks drove onto one end of the barge and were loaded by a Hough Payloader, which worked in the covered section of the barge.

Work on the overbank structure is well along; concrete is being placed

to form the keyways and relief wells are being sunk to protect the structure from the hydrostatic head. F & C Engineering Co., holds the \$6 million prime contract.

Designed to assist the low-sill structure in times of flood, the overbank structure has a total length, between abutments of 3,500 feet. It contains 73 gate bays, each with a 44-foot clear width between piers. The structure is not founded on piles but rests on its own base slab, which is keyed in three places by a reinforced-concrete wall that extends down from the slab into the natural ground.

Unusual on this structure is the forming of the keyways. Interlocking

Aggregate is fed to the Blaw-Knox 3-compartment automatic batch plant by a Koehring 605 crane with 70-foot boom and clamshell bucket. Gravel is shipped in by barge from Natchez, Miss.



Lightweight Fruehauf Airslide Cement Provide Bigger Roadbuilding Profits

Davis Cartage and Equipment Company of Carrollton, Michigan, finds that lightweight Fruehauf Airslide* Bulk Cement Transports cut unloading time drastically. In operation they build customer good will because they provide faster delivery service and greater efficiency.

These units build profits for their operators, too. A typical example is the 15-mile widening project on highway M-78 between Lansing and Battle Creek, Michigan, where Davis realized payload increases of 20 barrels of cement for each of its Airslide Bulk Cement trains. So successful has this equipment proven to be that Davis now operates 20 Fruehauf Airslide Bulk Cement Transports for state-wide deliveries to highway and bridge projects and to ready-mix and cement block plants.

Such engineering features as the Airslide Transport's single point outlet, and its discharge rate of 10 to 15 barrels a minute, make it a highly efficient method of handling bulk cement. If you are in the roadbuilding business, it will pay you to investigate the *complete* line of Fruehauf roadbuilding units which also includes dumps, platforms, carryalls, and screw type cement tanks. Completion dates on your projects depend on durable, dependable equipment. Let Fruehauf equipment help you keep these dates faithfully.

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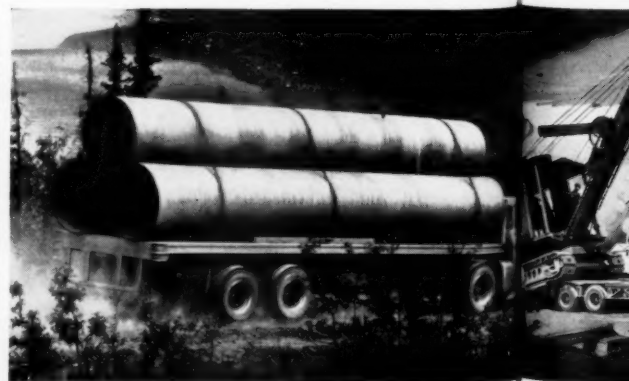
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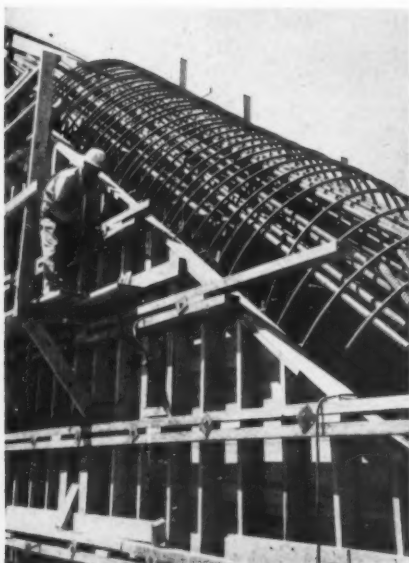
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FRUEHAUF CONSTRUCTION AND ROADBUILDING UNITS:

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COMPANY _____
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Complete Series of Platforms

Removable



A workman adjusts a Richmond coil tie on double 3x6 wales during forming for a pier section of the low-sill structure. No. 18 bars of reinforcing steel, 2 1/4 inches in diameter, run lengthwise through No. 10 semicircular steel. Because of its size, steel was placed individually and wired into place.



A Ford with Dumpcrete body unloads cement into the loading hopper of the Johnson twin batcher. The overhead silo has a capacity of 373 barrels; the ground silo's capacity is 711 barrels.

Cement delivered by covered barge from Baton Rouge, La., is transferred by a Hough Payloader to a Ford dump truck at the job-site dock. The Fords are equipped with Dumpcrete bodies.



Cement Transports in Profits



HERVEHAUF CONSTRUCTION TRAILER FOR EVERY ROADBUILDING JOB



Removable and Stationary Gooseneck Carryalls



Cable, Hoist and Hopper Dumps

sheet piling, driven into the ground by a McKiernan-Terry 9-B hammer handled by a Koehring 304 crane, serves as the two side forms for the keyway. On the upstream keyway, the upstream face of the keyway wall was vertical and 11 feet deep. The downstream face, on an 11 to 1 batter, had a width at the top of the keyway of 3 feet 10 inches. After the sheet piling is driven, a Koehring 304 backhoe excavates the material between the two rows of piling, making the forms for the keyway. When reinforcing steel has been placed and concrete poured, the sheet piling is extracted. The voids left by the sheet piling are filled with grout to complete the operation.

The sinking of the 19 permanent relief wells is being handled by the Independent Wellpoint Corp. of Vidalia, which uses a reverse-flow drill rig. The rig, which drills a 28-inch hole to an average depth of 160 feet, works on a principle similar to that used by a hydraulic dredge. The rotary cutter head of the drill not only bites into the bottom of the hole, but imparts a rotary motion to the water, which causes fines to line the inside of the hole. A suction line within the drill draws out the mud and water.

After a well has been drilled, an 8-inch wooden slotted well screen pipe is inserted in the lower three quarters of the hole. The remainder of the pipe is of solid wood. Then about 120 feet of filter gravel is placed in the hole outside of the well screen. The outside of the top 31 feet of the pipe is filled with concrete, and the remaining length between the concrete and the filter gravel is filled with sand.

The job of clearing the heavy growth of timber for the 7-mile outflow channel, being done under a contract held by Joe E. Freund of Vidalia, is practically complete.

The McWilliams Dredging Co. of New Orleans has two hydraulic dredges working on the first contract covering construction of the channel.

Construction of the Old River control project is under the general supervision of the Mississippi River Commission, Corps of Engineers. Direct supervision is being carried out by the New Orleans District. Col. William H. Lewis is district engineer, and Adolph Hedegaard, project engineer, for the New Orleans District.

In charge of the work for F & C Engineering Co. is Frank Mitchell, who is assisted by J. M. Langley. F. E. Neeley is project engineer. **THE END**

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distributor doings

Michigan Tractor & Machinery Co. displays the latest models in the Caterpillar line in this huge showroom at the Detroit, Mich., home plant.



To lick problem of serving growing industry,

Michigan Tractor & Machinery Co. expands, modernizes plant and service

by DON KING, feature editor

Rubber Tips Prevent Scars on Finished Concrete



Deep gouges and scars from steel vibrator tip on form face results in additional expense of clean up work.



Smooth finish concrete is produced by use of rubber tipped vibrators because they do not damage form face any more than ordinary pencil eraser. Extends the life of reusable forms.

More and more contractors rely on Viber Rubber Tipped Vibrators to end form face damage to concrete forms. Replaceable rubber tips, a Viber exclusive feature, eliminates possibility of accidental gouging or scarring of form faces, and expensive grinding or hand finishing of blemishes caused by gouged forms.

Where exposed concrete surfaces are an important part of the job, Viber Rubber Tipped Vibrators assure a perfect finish. They extend the life of your costly forms and end patching and replacement expense.

Another advantage of the replaceable rubber tip (where most wear occurs) is that it results in longer vibrator housing life.

Machined steel base and super-tough molded rubber body are combined to provide positive mechanically interlocked metal-to-rubber anchorage. This prevents any possibility of rubber coming off until it is ready for replacement. Tip replacement requires only the time necessary to unscrew the old tip and replace with a new one.

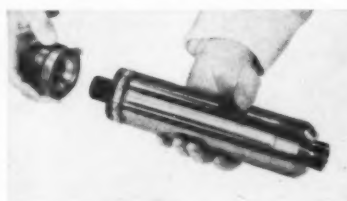
Standardize now on Viber Rubber Tipped Vibrators as other leading contractors have done.

Write for illustrated literature and name of nearest authorized distributor. Viber Company, 726 South Flower St., Burbank 22, California.



VIBRATORS
Pioneers and leaders in the manufacture of vibrators.

For more facts, use Request Card at page 18 and circle No. 219



Rubber tip is easily replaced by simply unscrewing worn part and replacing with new tip.

Equipment dealers are in for a busy future. They serve an industry that is well on its way to a \$62 billion year. The big road program is just beginning to roll—and other lines are hitting all-time peaks.

The dealer has a responsibility to the industry in this rising market. He has shown in the past that he can provide the specialty services needed. The same high-level performance will be expected of him in the stepped-up program.

The progressive dealer has anticipated this situation. He has taken steps to meet current commitments. And he is planning well into the future.

Such a dealer is Michigan Tractor & Machinery Co. This firm has modern sales and service facilities in Detroit and Grand Rapids, Mich. These are active areas with big futures in all types of construction. MTM has built a sound business on good customer relations. Its specialty services

"NEW BROOM SWEEPS CLEAN"

on street or highway



STANDARD STEEL

ENGINE and TRACTION
DRIVEN CONSTRUCTION
BROOMS

Check these features:

- Two way, 15° and 30° brush positions.
- Up to 73" wide sweeping patch even at 30°.
- Easy acting screw type lifting device eliminates troublesome hydraulic systems.
- High position broom lock for traveling.
- Wear equalizer adjustments at each end of brush.
- Chain drive from counter shaft to brush shaft.
- Traction model has 2 speed transmission.
- Engine model has 15 HP VE-4 Wisconsin power.

Write us or see your dealer for complete details.

OTHER PRODUCTS OF STANDARD STEEL
ASPHALT DISTRIBUTORS . . . BURNERS . . . POWER AND TRAC-
TION DRIVEN CONSTRUCTION BROOMS . . . MAINTENANCE
DISTRIBUTORS . . . TAR KETTLES . . . AGGREGATE SPREADERS
STREET FLUSHERS . . . PIPE LINE EQUIPMENT . . . SUPPLY TANKS
SHELVE HARDWARE . . . AND AGRICULTURAL EQUIPMENT

Write to **Standard** The Highest

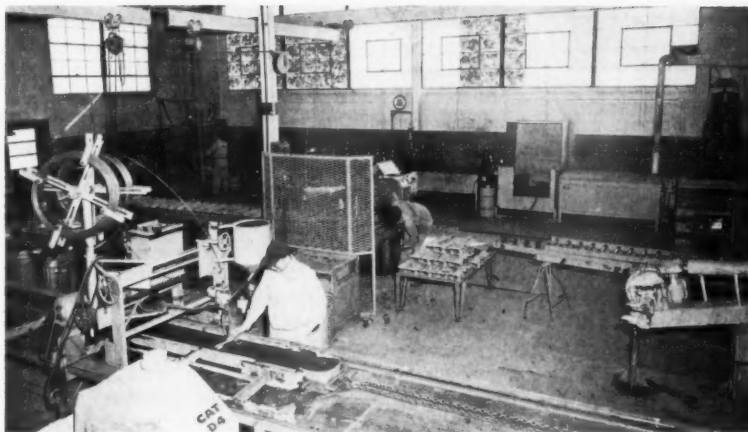
Standard Steel Works, Inc., NORTH KANSAS CITY, MO.

BR-1-57

For more facts, use Request Card at page 18 and circle No. 220

CONTRACTORS AND ENGINEERS

In the track-rebuilding section of the new 12,000-square-foot service building is equipment for all types of work on track components including a build-up machine, hydraulic track press, idler and roller welder, and track winder.



have gained it a fine reputation. Its growth has been keyed to that of the industry itself.

The men behind this progressive organization are not satisfied to ride along on past performance. Instead, they are planning ahead. Expansion and modernization are their trump cards. Improvement of the physical plant is being accompanied by a build-up of trained personnel.

The visitor to MTM's Detroit headquarters sees a large attractive showroom. On display is a good cross sec-



This track bolt shearing machine, designed and built by Michigan Tractor & Machinery, facilitates the removal of grousers from links in track assemblies.

tion of Caterpillar's huge line. And there are models of other tools and equipment sold by MTM. The display invites inspection and inquiry. No questions go unanswered. The prospective buyer sees the equipment and gets his information from specialists.

Service area added

Efficiency and orderliness belie the size of MTM's Detroit operation. Service facilities—under general service manager George McGrath and foreman Dick Pybus—formerly occupied 13,000 square feet. But to meet the needs of the stepped-up industry, MTM put up a 12,000-square-foot building. Here, under foreman Jerry LaFleche, used equipment and truck components are rebuilt. These areas are exclusive of showroom, parts department and business offices. An equipment yard with rail siding pro-

(Continued on next page)

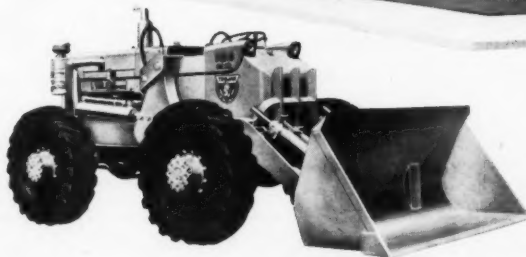
TROJAN

A YALE PRODUCT

COMES TO THE WEST!



Big, rugged TROJAN tractor shovels are now rolling off the production lines at the new, ultra-modern YALE & TOWNE plant in San Leandro, California . . . Convenient to every part of the west, TROJAN users will now benefit by faster deliveries of both new equipment and parts with tremendous savings in time and money . . . With full factory facilities so close at hand, your TROJAN distributor can offer the ultimate in service—backed by YALE & TOWNE'S 82 year old reputation for building the finest in material-handling equipment!



Manufacturing, sales and service for the 11 western states will be centered in this big, new YALE & TOWNE plant . . . Complete parts stocks and a large service department will be immediately available to offer westerners a better brand of service than they have ever before experienced!



44-30

TROJAN

*REG. U. S. PAT. OFF.

YALE & TOWNE

TRACTOR SHOVELS

2 & 4 Wheel Drive Front-End Loaders

CONTRACTORS MACHINERY DIV., THE YALE & TOWNE MANUFACTURING COMPANY, BATAVIA, NEW YORK; SAN LEANDRO, CALIFORNIA
For more facts, use Request Card at page 18 and circle No. 221

distributor doings

vides ample room for equipment-handling and storage.

A fleet of well equipped service trucks supplies field assistance. A portable track press covers Michigan's lower peninsula, handling on-the-job pinning and bushing. Heavy machines are delivered with a 225-hp truck tractor and 40-ton Martin folding gooseneck trailer. On-the-job reconditioning saves transportation of heavy units and averts costly dead-lining of equipment. A service representative covers the entire state as a good-will ambassador. He visits owners and gives them advice on keeping their machines in operating condition.

Modern shop facilities

MTM's shops are equipped with the latest and the best precision machines. A new tool room at the Detroit plant contains all needed equipment for industrial engine and tractor repairs—including machinery for expert cylinder block reboring. Complete radiator repair facilities are available for all types of heavy-duty equipment.

Facilities are available for rebuilding all track components—from idlers, rollers, and sprockets, to links and grousers. A four-spindle automatic welder rebuilds the rollers and idlers. Since this work is done in stages, excessive heat is eliminated and the rollers last longer. A boring bar setup accurately rebore the rollers after they leave the automatic welder. A drill press with thread-tap-

ping attachment is used to retap the track rollers.

A new submerged automatic welding machine builds track links up to original specifications. This new welding process is also used in resurfacing shovel pads up to 40 inches wide. Grousers are built up by welding special bar stock to the worn part.

A steam-cleaning and sand-blasting booth is large enough to handle the jumbo-size earthmoving units. A Caterpillar connecting rod boring machine turns out high quality work. This precision machine rebore piston pin bushings to factory specifications. The finish on the bored bushings exceeds that obtained with a reamer. Rebuilding of tractor and shovel assemblies is facilitated by 150-ton vertical and horizontal presses. An electrically

driven Kwik-Way machine refaces valves and reconditions rocker arm assemblies. Rebuilding, reconditioning and repairing of all types of heavy-duty industrial engines, tractor radiators and oil coolers are MTM specialties.

Tight control over parts inventory assures stocking the right part at the right time. If too many parts are carried, capital is tied up needlessly. If stocks are inadequate, customers are disappointed. Ability to fill 95 per cent of its orders from stock on hand is the parts department's goal. Currently, it is filling about 91 per cent. This is an admirable job, considering the fact that it is stocking 12,000 of the 90,000 Cat parts.

Grand Rapids plant

MTM's Grand Rapids plant is also expanding and modernizing. A larger service area, under the supervision of Charles Reimann, allows plenty of space for complete overhaul. A heavy-duty track press for installing new pins and bushings, or turning old ones, is but one of many modern machines in the 12,000-square-foot service area.

In addition to the spacious shop, this plant now maintains a new steam room and modern paint shop. These are the most advanced facilities available today.

Increased space boosts the efficiency of the parts department. All heavy material is handled by fork lifts. This equipment moves freely in wide areas throughout the shelved section.

A new fuel injection room lives up to the slogan, "A place for everything and everything in its place." This brightly illuminated area is kept in spotless condition. The well-stocked tool crib includes the latest testing and rebuilding equipment needed on any Caterpillar product job.

A depressed loading well at the Grand Rapids plant accommodates every type of truck transport. All loading and unloading takes place indoors.

Parts assembly exchange plan

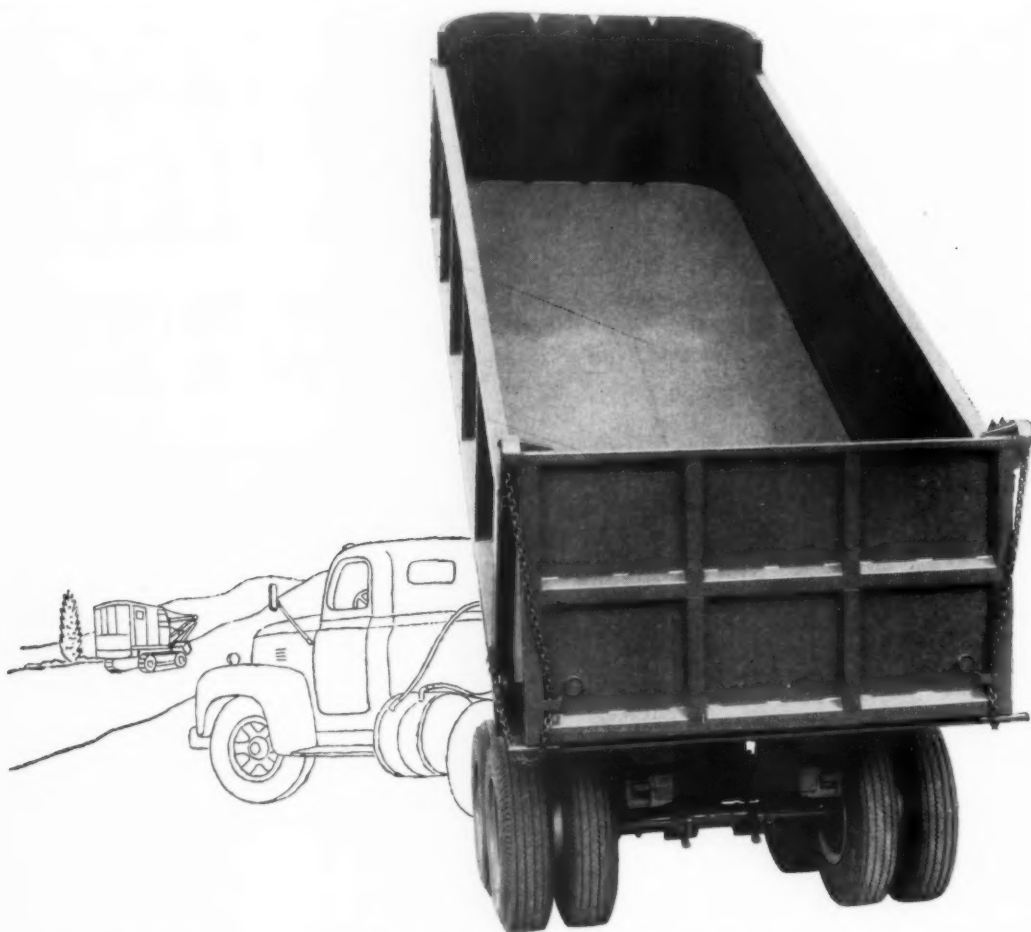
In keeping with its efforts to improve its service to customers, MTM offers a parts assembly exchange plan. This innovation simplifies the servicing of Caterpillar-built machines. It gets the machine back in business in a matter of hours.

Should a tractor cylinder head, starting engine, or any of 67 other Caterpillar assemblies need replacing on the job, there is no time-consuming delay for dismantling and repair. The entire assembly is removed. A completely rebuilt and reconditioned unit is taken from MTM's stock on hand. And the assembly is replaced right in the field. There is no waiting while parts are ordered or reconditioned.

When the reconditioned part has been installed, the old assembly is returned to MTM within five days. Credit is allowed on the old assembly. The only billing is for parts and labor required to bring the old part up to rebuilt specifications for the next customer.

The precision work is done at the

CONTRACTORS AND ENGINEERS



Which hoist is lifting this dump trailer?



No single type of hoist can effectively meet the diverse requirements of construction work today. That's why Trailmobile provides the full range of hoist arrangements shown above and many other design variations—so that your particular dump trailer needs can be fulfilled without undesirable compromises.

Your Trailmobile representative will show you how you can "custom design" your next dump trailer for maximum efficiency under your conditions. Call him—you'll find he is an extremely helpful "consultant".

TRAILMOBILE INC.

Cincinnati 9, Ohio • Berkeley 10, Calif. • Springfield, Missouri • Longview, Texas
Sales and Service from Coast to Coast

For complete information check your nearest Trailmobile sales office or use this coupon.

TR-619

TRAILMOBILE INC. • 31st & Robertson • Cincinnati 9, Ohio
Please send me complete information on Trailmobile dump trailers.

Name _____
Company _____
Street _____
City _____ State _____

For more facts, use coupon, or Request Card at page 18 and circle No. 222

MTM plant where proper tools and machinery are available. The customer's mechanics perform the relatively simple task of removing the old assembly and installing the new one. This cuts the customer's skilled labor costs. And it reduces downtime and cost of repairs.

Sales training program

A well integrated trainee program has been set up. Its aim is to familiarize new sales personnel with all phases of MTM's operations. Trainees are well grounded in the basic fundamentals of equipment care and maintenance. And they are taught the rudiments of modern construction.

Trainees spend two years in service, parts, and accounting. Before they go

into the field they get actual floor sales experience under the guidance of experts. When a man finishes his training he is ready to give sound advice on field problems and recommend types of equipment best suited to the job.

THE END

Dealer offers catalog

State Equipment Companies, Harrisburg, Pa., has published a 12-page handbook on the line of heavy equipment it carries. The catalog features action photos and descriptions of more than 35 lines of industrial equipment available.

A free copy of the handbook may be obtained by writing to State Equipment Companies, c/o Robert Chase, 3725 N. Front St., Harrisburg, Pa.

Davey Compressor names nine new distributors

Davey Compressor Co., Kent, Ohio, has appointed nine distributors to handle its full line of industrial compressors, truck-mounted compressors, and air tools and accessories. The dealers are: Superior Equipment Co., 2402 S. 19th Ave., Phoenix, Ariz.; Larson Equipment Co., 2421 E. 57th St., Los Angeles, Calif.; and George Park Tractor Co., 1320 Guy Paine Road, Macon, Ga.

Others are: Miller Equipment Co., 538 Bond Ave. N. W., Grand Rapids, Mich.; Construction Machinery Co., 2601 Second St. N. W., Albuquerque, N. Mex.; Tulsa Equipment Co., 1804 N. Lewis, Tulsa, Okla.; Oklahoma City Equipment Co., 20 N. E. 38th St., Oklahoma City, Okla.; Martin Equipment Co., 1845 Plantation Road, Dallas, Texas; and Universal Equipment Co., 1549 Eastlake Ave., Seattle, Wash.

Dealer division becomes separate corporation

After operating for 43 years, first as a proprietorship, then a family partnership, and a closely held corporation, the Lang Co., Inc., Salt Lake City, Utah, has become a public corporation. At the same time the Lang Construction Equipment Co., formerly a division of the Lang Co., separated to form an independent corporation.

The new corporation will continue the construction machinery phase of the business, and act as a distributor for International Harvester Co., Bucyrus-Erie Co., Frank G. Hough Co., Galion Iron Works & Mfg. Co., Barber-Greene Co., Gardner-Denver Co., and Drott Mfg. Corp.

H. A. Christiansen has been named president and general manager of Lang Construction Equipment Co.

Prime-Mover appoints four distributors

Four new distributors have been appointed by the Prime-Mover Co., Muscatine, Iowa. The exclusive distributor for western Missouri and Kansas is Machinery & Supplies Co., Inc., Kansas City, Mo. The state of Colorado is being covered by Constructors Equipment Co., Inc., Denver, Colo.; and C. P. Concrete Equipment Co., Oakland, Calif., is handling the northern half of the state.

Seastrom & Co., 2351 Kentucky Ave., Indianapolis, Ind., has been appointed an exclusive distributor for Prime-Mover's powered carts and fork-lifts for handling concrete, masonry materials, and building supplies in southern Indiana.

Garlinghouse, Fremont news

Leonard Parkes has joined the sales staff of Garlinghouse, Fremont & Co., Los Angeles, Calif. He will cover the western part of Los Angeles County and sell all lines of heavy construction machinery distributed by the firm. The company handles such lines as CMC, Hewitt-Robins, McKiernan-Terry, Trojan, Unit, and Viber.

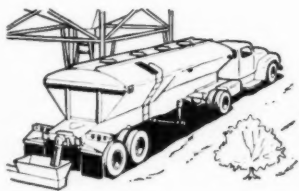
McGowan Pump appoints two new distributors

Two new distributors have been appointed by the McGowan Pump Division, Leyman Mfg. Corp., Cincinnati, Ohio. Carrying the complete line of McGowan pumps in the eastern half of Michigan's lower peninsula is the Miller Equipment Co. of Detroit, Inc., 30303 Plymouth Road, Livonia. The western half of the peninsula will be handled by Miller Equipment Co. of Grand Rapids.

Public Works Equipment Co., Inc., 786 University Ave., St. Paul, Minn., will serve North Dakota and Minnesota. The firm's branch office in Clintonville, Wis., will cover that state outside the Milwaukee area.

(Continued on next page)

There's a Trailmobile trailer for every construction need



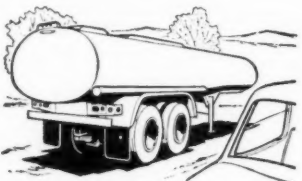
TRAILMOBILE CEMENT BULKERS

... transport large amounts of bulk cement to mixing plants at the job site. Both steel and aluminum types offer exclusive step-down design with twin screw discharge.



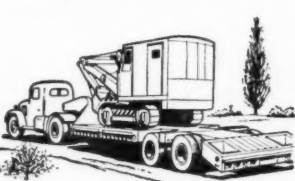
TRAILMOBILE HYDRAULIC DUMPS

... provide big capacity in a dump-type trailer for hauling and unloading sand and gravel. Unusually rugged construction guards against costly out-of-service time.



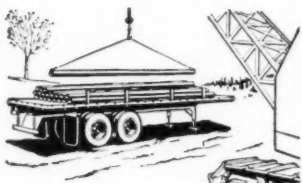
TRAILMOBILE TANK TRAILERS

... are widely used for hauling hot asphalt, road oils, and the great volume of water required at the site. Most units carry a unique guarantee against tank leakage.



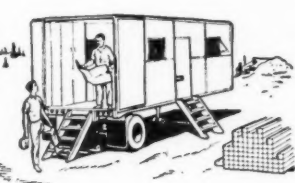
TRAILMOBILE LOW BEDS

... are used to deliver heavy road building equipment to the job area. Steel shovels, bull dozers and other large tractor-treaded units can be easily transported on these powerfully built trailers.



TRAILMOBILE PLATFORM TRAILERS

... are used for carrying lumber, cement forms, drainage tile, straw bales and sundry light equipment. "Sideless feature" permits simpler, faster loading and unloading.



TRAILMOBILE FREIGHT VANS

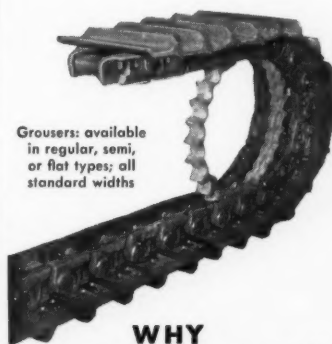
... combine weather protection and mobility for hauling general supplies. Low cost used vans provide ideal job site offices, tool shops or storage facilities.

TRAILMOBILE INC.

Cincinnati 9, Ohio, Berkeley 10, Calif., Springfield, Mo., Longview, Texas
Sales and Service from Coast to Coast

For more facts, use Request Card at page 18 and circle No. 223

AUGUST, 1957



Grousers: available in regular, semi, or flat types; all standard widths

WHY Kensington track LASTS SO LONG

There are two reasons why these tracks give you longer service, even under severest working conditions: (1) KENSINGTON's new, improved design, and (2) superior, wear-resisting alloyed manganese steel.

New Design. Rigidity and near-perfect alignment are made possible by one-piece rail design and special heat-treated alloy pins pressed tightly in place under high pressure. Anti-shear lugs on grouser plate fit snugly over tie bar of link to eliminate loose plates, elongated bolt holes, twisting, weaving, and side-sway ... the most common causes of bolt loosening and track trouble. Grousers are heaved-up at all critical points to better resist bending and breaking.

Yet, despite all these improvements, KENSINGTON Track Assemblies fit all standard, popular make crawler tractors.

Steel with Stamina. Special, hard, tough, KENSINGTON-developed alloyed manganese steels actually fight back against wear! They constantly develop extra surface hardness when exposed to friction, abrasion, and impact.

KENSINGTON tracks come from the factory ready-assembled, easy to install.

Discover for yourself how much KENSINGTON tracks will lower your maintenance costs and improve your operating efficiency. Coupon will bring details.



KENSINGTON STEEL

Dept. A505 Kensington Ave., Chicago 28, Ill.

Please send information on crawler tracks for tractor described below. I understand I will be under no obligation.

Make of tractor _____ No. tracks _____
Model _____ per belt _____
Width of grouser _____
NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____
STATE _____

For more facts, use coupon or circle No. 224

distributor doings

Buffalo-Springfield news

The Buffalo-Springfield Co., Division of Koehring Co., Springfield, Ohio, has appointed two dealers. Earle Equipment Co., 6331 Tireman Ave., Detroit, Mich.; and Marks Tractor & Equipment Co., 4300 Brookpark Road, Cleveland, Ohio, will handle Buffalo-Springfield's line of road rollers, etc.

Anthony Co. dealers honor firm's 40th anniversary

About 150 distributors, suppliers, and company officials from all parts of the United States and Canada gathered at the Anthony Co., Streamer, Ill., to celebrate the firm's 40th anniversary. The 2-day sales conference was the first meeting of its size ever held by the Anthony Co.

At the conference a Distributor Advisory Board was formed to meet several times a year with company management officials to discuss marketing

and distributor problems. Newly elected officers of the board are Frank Platt, chairman; Charles Lambert, vice chairman; and directors Fred Black, Jr., Wm. Boggs, W. H. Brodie, Lou Collier, and Andy Garner.

Carver Pump appoints

Wepco Equipment Co., Cleveland, Ohio, has been appointed a dealer by the Carver Pump Co., Muscatine, Iowa. Wepco Equipment will handle Carver's line of pumps.

Warner & Swasey appoints four new distributors

The Gradall Division, Warner & Swasey Co., Cleveland, Ohio, has named the Contractors Equipment & Supply Co., Albuquerque, N. Mex., distributor for the entire state. Fehrs Tractor & Equipment Co., 1809 Cummings St., Omaha, Nebr., will handle the Nebraska counties west of and including Dickson, Clay, Buena Vista, Sac, Crawford, Shelby, Cass, Montgomery, and Page.

Construction Equipment Co. Ltd., 33 E. Third St., Vancouver, British Columbia, Canada, which now handles the Gradall line in Alberta and Saskatchewan provinces, takes on the territory of British Columbia and the Yukon. The Territory of Hawaii will be represented by U. S. I. International, Division of U. S. Industries, Inc., Honolulu.

Shunk Mfg. appoints nine new dealers

Nine new dealerships for Shunk-Torwel front and rear reversible automatic highway spreaders have been appointed by the Shunk Mfg. Co., Bucyrus, Ohio. The dealers are: Earl Ives Equipment Co., Mentor, Ohio; Faris Moritz Equipment Co., Denver, Colo.; Gil Boers Equipment Co., Chicago, Ill.; and Harry Bareika, Inc., Kingston, N. Y.

The other five dealers are J. C. Georg Construction Equipment, Inc., East Syracuse, N. Y.; Rand-MacMurray, Inc., Huntington, N. Y.; H. K. Nuttall Equipment Co., Inc., Sherman, N. Y.; Equipment Distributors, Inc., Charleston, W. Va.; and The Chemical Corp., Springfield, Mass.

McKiernan-Terry appoints new Southern distributor

Southern States Equipment Co., 401-425 Celeste St., New Orleans, La., has been appointed a distributor by the McKiernan-Terry Corp., Dover, N. J. The new dealer will handle McKiernan-Terry's line of steam-air and diesel pile hammers, steam generators, lightweight leads, drive caps, and other pile-driving equipment and accessories.

Aero Design names dealer

Commandair, Inc., has been named a distributor for the Commander twin-engine executive aircraft manufactured by the Aero Design & Engineering Co., Bethany, Okla. Commandair, Inc., has sales and service headquarters in hangar D at Westchester County Airport, White Plains, N. Y., and sales offices at 535 Fifth Ave., New York City. The dealer holds the franchise for eastern New York, northern New Jersey, and northeastern Pennsylvania.

Little Giant names three distributors

Three new distributors have been appointed by Little Giant Products, Inc., Peoria, Ill. Covering the state of South Dakota is Dakota Iron Store.

Hydraulic booster power steering
... adjustable wheel height

Toggle-type controls for kick-free action, "blue-top" accuracy

Adjustable seat rolls forward for sit-down operation, back for stand-up operation

Foot throttle overrides hand setting up or down, leaves both hands free for controls

Low control panel ... tapered platform for maximum visibility

ALLIS-CHALMERS
FORTY FIVE

FIVE WAYS YOU CAN BOOST GRADER PRODUCTION

... through operator comfort and control!

Features like these make satisfied operators ... mean more production for you. They're yours in an Allis-Chalmers FORTY FIVE—120 brake hp, 23,800 lb. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Engineering in Action

For more facts, use Request Card at page 18 and circle No. 225

Sioux F...
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3402 Roc...
San Dieg...
by Con...
Newton.

Butler

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Sioux Falls, S. Dak.; 32 counties in the southern part of Texas will be handled by Girard Machinery Supply, 3402 Roosevelt Ave., San Antonio. The San Diego, Calif., area will be served by Construction Machinery, 2175 Newton Ave., San Diego.

Butler Machinery moves

The Butler Machinery Co., Fargo, N. Dak., Caterpillar distributor for the eastern half of North Dakota and Clay County in Minnesota, has moved into a new \$200,000 building at 3500 Main Ave., Fargo. Butler Machinery also rebuilds Caterpillar final-drive hubs, worn flanges, etc.

The new headquarters has over 30,000 square feet of space for offices, show rooms, parts, and service facilities. Eight bays are in the service area, which is at the rear of the structure.

Maine dealer for B-E

Eastern Tractor & Equipment Co., Portland, Maine, now offers sales and parts service on excavators and cranes manufactured by the Bucyrus-Erie Co., South Milwaukee, Wis. The new dealer will cover the state of Maine from offices at 46 Cove St., and its branch office on Presque Isle Road, Caribou.

Chapman Binder Machinery Co., Union, N. J., has been named B-E distributor for the northern part of New Jersey and Richmond County in New York.

Ruhr Industries appoints

Four new dealers have been appointed by Ruhr Industries, Philadelphia, Pa. The dealers are Contractors Sales Co., Inc., Karner Road, Albany, N. Y.; Flack Equipment Co., 1240 McCook Ave., Dayton, Ohio; North Jersey Equipment Co., 450 U. S. Highway No. 1, Newark, N. J.; and Clark-Wilcox Co., 118-124 Western Ave., Boston, Mass.

LeT-WesCo names dealer

G-K Machinery Co., 5200 Federal Way, Boise, Idaho, has been appointed a distributor for the line of Adams products and that of the LeTourneau-Westinghouse Co., Peoria, Ill. G-K Machinery will cover southern Idaho and eastern Oregon.

Koehring names dealer

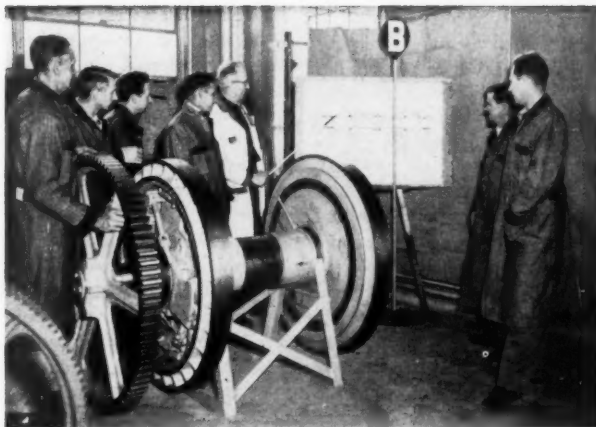
The Action Equipment Co., 2915 E. Miner Ave., Stockton, Calif., has been appointed a dealer by the Koehring Co., Milwaukee, Wis. Action Equipment will handle sales and service for Koehring, Parsons, Kwik-Mix, and all Koehring divisions.

New dealer for Euclid

Kyle Equipment Co., 125 N. Vine-land, Puente, Calif., has been appointed a dealer for the Euclid Division, General Motors Corp., Cleveland, Ohio. Kyle Equipment will cover the

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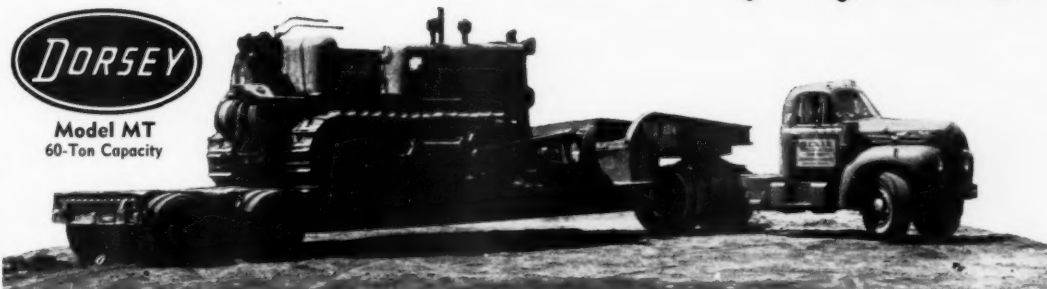
THE OPERATION of a main drum shaft for a Koehring 605 excavator is explained by instructor Harvey Thiel (third from right) during the first of four one-week training sessions for dealer servicemen at the proving grounds of the Koehring Co., Milwaukee, Wis. Listening (left to right) are Leo Deyak, Pacific Hoist & Derrick Co., Seattle, Wash.; George Walters, Florida Equipment Co., Tampa, Fla.; Bill LeBrun, Brooks Equipment Co., Ltd., Winnipeg, Canada; Jack Courtney, Florida Equipment Co., Miami, Fla.; Bill Williams, Wilson-Weesner-Wilkinson Co., Nashville, Tenn.; and James Tilton, American Machine Co., Spokane, Wash.



500,000 miles....and still going strong



Model MT
60-Ton Capacity

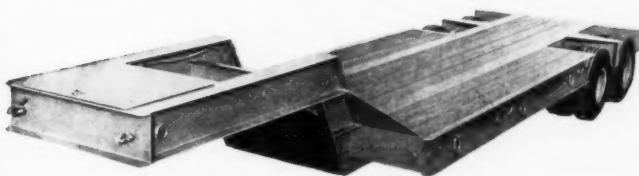


After hauling construction equipment a distance equivalent to TWENTY TIMES AROUND THE WORLD this 60-ton-capacity Dorsey Model MT lowboy still performs dependably for Dixie Construction Co., of Savannah, Ga. "Strength and low maintenance cost," according to O. J. Briston, Dixie shop foreman, are two of the many important features that make Dorseys superior. We invite close scrutiny of all Dorsey specifications. Dimensions of main beams and all other structural members will convince any engineer that Dorseys are built to "take it!" Dorsey standard specifications also include lights, brakes and other items needed for highway use and tires for each model are full-sized for capacity loads.

For every tough job, there's a tougher Dorsey

MODEL HTS

20 Ton capacity — Weighs Only 8,250 pounds (also available in 15, 25, 30 and 35 ton capacities). Although as much as a ton lighter than other trailers of comparable capacity, high-tensile steel main channels and close-spaced all-welded cross members give the HTS superior strength and ruggedness. Flat gooseneck provides support for blades and other loads.

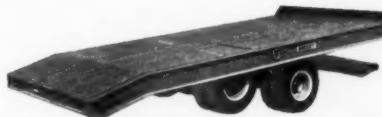


THE GIANT PLATFORM

44,000 lb. capacity—Weight: 8,410 pounds. In the year since its introduction, the Giant has become America's No. 1 platform! Although as much as 2,000 lbs. lighter than other platforms, it has even greater strength.

TANDEM TILT-TO-LOAD

15,000 and 20,000 capacities—Weights: 2,500 and 2,700 lbs. Speed and efficiency as well as economy are combined in this versatile tilt model! It's so light a dump truck pulls it easily. Two-way hydraulic control is so precisely balanced the weight of a man will tilt it up or down. Single axle models also available.



NEW SELF LOADING FLOAT

This year Dorsey has introduced a complete line of self loading floats to meet any requirement of the heavy machinery hauler. The three models are designed to carry from 45,000 to 80,000 pounds evenly-distributed or 20,000 to 45,000 pounds concentrated in 10 feet. Each float is engineered to its specific capacity and length.



For the complete facts on any model heavy-duty trailer, see your Dorsey distributor or wire collect —

DORSEY TRAILERS / ELBA, ALABAMA

For more facts, use Request Card at page 18 and circle No. 226

distributor doings

counties south of and including Kern, San Bernardino, and San Luis Obispo.

Universal Motor names two foreign dealers

The Universal Motor Co., Oshkosh, Wis., has two foreign dealers to handle the firm's line of gasoline and diesel-powered electric power and light plants. Electronics & Film Equipment Ltd., Karachi, Pakistan, has been given the franchise for that country; and the Bahamas Supply Air-Conditioning Ltd. will be the distributor in Nassau and the surrounding islands of the Bahama group.

Kwik-Mix names dealer

Pacific Builders Supply Co., 400 N. Thompson St., Portland, Oreg., has been appointed a construction distributor by the Kwik-Mix Co., Division of Koehring Co., Port Washington, Wis. The dealer will cover sections in Oregon and Washington.

B-L-H names distributors

Two new distributors have been named to carry the line of cranes, shovels, draglines, and pull shovels manufactured by Baldwin-Lima-Hamilton Corp., Construction Equipment Division, Lima, Ohio. Werckle Construction Equipment Co., 718 Miller Ave., Rockford, Ill., will cover the northwestern portion of the state.

Western Contractors Supply Co., 4817 Lake St., Melrose Park, Ill., will cover parts of Indiana.

Vulcan Iron Works' dealers

Seven dealers have been appointed by Vulcan Iron Works, Inc., Chicago, Ill. The new dealers carrying Vulcan's complete line of pile driving and pile extracting machinery are Hillsman Equipment Co., Melrose Park, Ill.; J. J. Gregory & Son, East Providence, R. I.; and R. A. Young & Son, Fort Smith, Ark.

The other four dealers are Hawkins Equipment Co., Memphis, Tenn.; Carroll & Edwards Co., Cincinnati, Ohio; Intermountain Equipment Co., Boise, Idaho; and A. H. Cox & Co., Seattle, Wash.

Manitowoc names dealer

Carrier Engineering Co., 233 S. W. 30th St., Fort Lauderdale, Fla., has been appointed a distributor in southern Florida for Manitowoc Engineering Corp., Manitowoc, Wis. Carrier Engineering will handle the complete line of Manitowoc cranes, shovels, draglines, mobile cranes, and backhoes.

Convention calendar

August 26-30 National Shade Tree Conference

Conference, Sheraton Hotel, Philadelphia, Pa. L. C. Chadwick, secretary-treasurer, NSTC, Department of Horticulture, Ohio State University, Columbus, Ohio.

September 3-6 New York State County Highway Superintendents Association

Summer Meeting, Concord Hotel, Kiamasha Lake, New York. Harry R. Mason, secretary, NYSCHSA, 310 De Witt Clinton Hotel, Albany, N. Y.

September 9-11 Associated General Contractors of America, Inc.

Mid-year Board Meeting, Olympic Hotel, Seattle, Wash. Wm. G. Dooly, Jr., public relations director, AGC, 1227 Munsey Bldg., Washington 4, D. C.

September 17-19 Increasing Highway Engineering Productivity

Fourth Conference, Somerset Hotel, Boston, Mass. H. A. Radzikowski, chief of development, Bureau of Public Roads, Washington 25, D. C.

September 22-25 American Public Works Association

Public Works Congress and Equipment Show, Benjamin Franklin Hotel, Philadelphia, Pa. D. F. Herrick, executive director, APWA, 1313 E. 60th St., Chicago 37, Ill.

October 1-3 Southeastern Association of State Highway Officials

Meeting, Dinkler Plaza Hotel, Atlanta, Ga. F. L. Ackerson, assistant construction engineer, SASHO, Georgia State Highway Department, 2 Capitol Square, Atlanta 3, Ga.

October 1-4 National Association of Corrosion Engineers

Meeting of North and South Central Regions, Sherman Hotel, Chicago, Ill., and City Auditorium, Oklahoma City, Okla., respectively. A. B. Campbell, executive secretary, NACE, 1061 M & M Bldg., Houston 2, Texas.

October 2-4 American Society of Photogrammetry

Meeting, Chase Plaza Hotel, St. Louis, Mo. C. E. Palmer, secretary and treasurer, ASP, 1515 Massachusetts Ave. N. W., Washington 5, D. C.

October 7-10 American Institute of Steel Construction

Meeting, Del Coronado Hotel, Coronado, Calif. L. A. Post, executive vice president, AISC, 101 Park Ave., New York 17, N. Y.

October 8-11 Ohio Short Course on Roadside Development

Meeting, Departments of State Building, Columbus, Ohio. Chas. R. Sutton, OSCRD, Brown Hall, Ohio State University, Columbus, Ohio.

October 9-11 National Slag Association

Annual Meeting, Plaza Hotel, New York, N. Y. E. W. Bauman, managing director, NSA, 613 Perpetual Bldg., Washington 4, D. C.

October 14-18 American Society of Civil Engineers

Annual Convention, Statler Hotel, New York, N. Y. D. P. Reynolds, assistant to the secretary, ASCE, 33 W. 39th St., New York 18, N. Y.

October 18-19 National Society of Professional Engineers

Fall Meeting, Patterson Hotel, Bismark, N. Dak. Kenneth Trombley, NSPE, 2029 K St. N. W., Washington 6, D. C.

CONTRACTORS AND ENGINEERS



This unique GMC 12-wheeler hauls 9 legal yards within 60,000 GVW

Warner of Philadelphia—one of America's top three ready-mix outfits—uses GMC's to swing 2½ extra yards every trip

IT TAKES plenty of truck backbone to haul 18 tons of concrete. But Warner Company took advantage of GMC's enormous reserve strength—had an extra front axle installed locally for the desired weight distribution—and they have mixers that swing 9-yard loads!

That means each of their GMC FWX660's is hauling, in two trips, almost as much payload as their previous trucks delivered in three. Multiply that by the 26 GMC's in Warner's fleet, and you'll see how delivery costs take a nose dive.

"GMC gave us the ideal weight setup in an easy-to-manuever c.o.e.," says Equipment Superintendent Charles Ponti. "What's more, these trucks have the ruggedness—and then some—to

handle their big loads under the toughest conditions we ever meet."

The first of these GMC FWX660's was put to work in early 1956. How successful were they? Warner ordered 6 more eight months later. Then 3 more. Seven others were delivered this past March.

No mystery about the reason: "On every job where we can use their full 9-yard capacity, we are making substantial savings," says Ponti.

Here, then, is another example of the way GMC's—of every size and type—are cutting costs for America's top construction firms. No matter what you haul—or where you haul it—check all the GMC advantages with your GMC dealer!

GMC TRUCK & COACH—A General Motors Division

For more facts, use Request Card at page 18 and circle No. 228

ARBA increases activities of technical committees

The American Road Builders' Association is broadening the scope and increasing the work of its 26 technical committees. The newest of the committees pertain to airport pavements and flexible type pavements. The airport pavement group is under the chairmanship of Henry J. Lichtenfeld, chief of the technical branch of the Civil Aeronautics Administration; D. D. Woodson, staff engineer of the Asphalt Institute, is chairman of the flexible type pavement group.

Three relatively new committees deal with photogrammetry, highway illumination, and electronic computers. One of the busiest of the groups is that on roadside construction and maintenance.

Highway maintenance topic of HRB bulletin

Highway Research Board Bulletin 155, "Highway Maintenance Studies", contains two papers, the first of which describes the trends in maintenance costs and proposes two methods of estimating maintenance costs.

The second paper, a Minnesota county engineer's report, finds that the uniform accounting system used by counties in that state has been individually interpreted and consequently individual systems have been set up. The procedure for a new study has been developed to cover cost accounting and the extent of maintenance service provided.

Priced at 50 cents, the bulletin is available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

Photogrammetry Section set up by engineering firm

A complete photogrammetry department, the first of its kind in south Florida, has been set up by Rader & Associates, Miami, engineering and architectural firm. Heading the new department is Elmore K. Kerkela.

At the same time, the firm purchased a Galileo-Santoni Stereocartograph Model 4, a \$52,000 optical-mechanical device on which the photogrammetry section will center. This unit uses photographs shot from an altitude of half a mile to make vertical readings accurate to within four inches of the terrain under view.

Stone & Webster expands Canadian facility

Stone & Webster Canada, Ltd., Toronto, a branch of Stone & Webster Engineering Corp., Boston, Mass., is building new facilities for a design and drafting group, which will be integrated in the engineering, design, and construction organization. For the expansion, Stone & Webster Canada, Ltd., leased new offices at 900 Yonge St., Toronto.

Under a recent policy decision by Stone & Webster, engineering and construction services throughout the dominion will be supplied by Canadian engineers and designers.

"He's doing a series on vanishing American types."



Super-Triplex saves contractor \$1.84 per cubic yard in compacting backfill



Time after time, it's been proven that when an Ingersoll-Rand Super-Triplex Tamper moves in on the job, work gets done better and at lower cost...

On a midwestern building project, with soil composed of sandy gravel with 15% to 20% clay content, the contractor could not maintain a 95% Proctor Density on a 4" lift. His problem: compacting was costing \$2.67 per cubic yard, and results were unsatisfactory.

A demonstration of the powerful Ingersoll-Rand GT44 Super-Triplex Tamper, showed conclusively that it could compact a 12" lift to standard density—doing it quicker and at a cost of only \$.83 per cubic yard.

Triplex Tampers Assure Quality Work

Construction men, who know how important it is to have backfill with no subsequent settlement, have been quick to select the I-R Triplex Tamper.

Other Triplex Tamper Features:

Faster Operation: One man with less effort does the work of 5 men with single tampers.

Greater Safety: Wheel barrow type handles hold butts away from operator's feet.

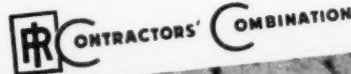
Higher Lifts: 20% higher lifts of solidly tamped ground.

Uniform Work: Wide pattern assures systematic coverage.

See for yourself how an I-R Triplex Tamper can speed your backfilling operations and at less cost. Call your Ingersoll-Rand AIRengineer, or write today for descriptive literature.

Ingersoll-Rand
11 Broadway, New York 4, N.Y.

THE BEST AIR EQUIPMENT FOR BETTER HIGHWAYS



18-548

For more facts, use Request Card at page 18 and circle No. 229



Larwin Co.'s maintenance superintendent Ed Meibos acknowledges a request for materials needed at Mirada Park, another construction tract of Larwin's. Meibos has one of the six RCA 15-watt mobile units.

Two-way radio brings home office to job sites

management

When the Larwin Co., Beverly Hills, Calif., installed a two-way radio system in its home office and construction sites, officials realized it would step up operations and save the firm money. But the time, work, and money saved was far above expectations.

Larwin is using the four-base-station operation to deliver orders and top level decisions to executive and maintenance personnel on the road and on three construction jobs in Northridge, Buena Park, and Norwalk. The radios are also used to handle everything from escrows to day-to-day construction schedules.

HYSTER® WINCH PULLING POWER KEEPS CONSTRUCTION JOBS MOVING

Here's the flexible pulling power that keeps equipment on the job and moving. A Hyster towing winch on your new or used Caterpillar-built tractor puts that power *where* you want it, *when* you want it.

Rescuing bogged-down equipment, land clearing, assisting other equipment up steep grades, winching machines in and out of hard-to-reach locations—any tough job is routine for a Hyster Towing Winch.

Hyster makes a matched Towing Winch model for each of the Caterpillar-built Tractors.

At Caterpillar-Hyster Dealers throughout the world. Call your Caterpillar-Hyster dealer for complete details.



HYSTER COMPANY

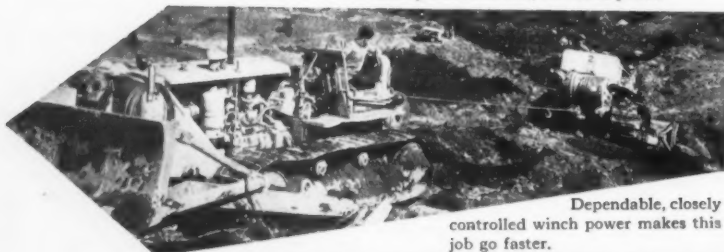
A full line of Winches for Caterpillar-Built Tractors

Portland, Oregon
Peoria, Illinois
Nijmegen, The Netherlands

Easing equipment down steep slopes is only one of many utility jobs performed by instantly available winch power.



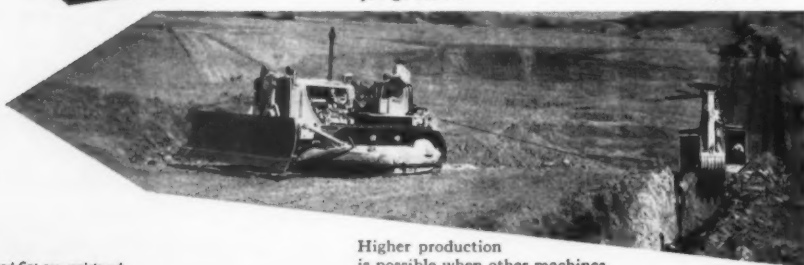
Bogged down scraper put back into action fast, cuts production loss, increases profit.



Dependable, closely controlled winch power makes this job go faster.



Tough bulldozing jobs like this are possible with steady, reliable Hyster winch power.



Higher production is possible when other machines get assistance from tractor-mounted winch.

Caterpillar and Cat are registered trademarks of the Caterpillar Tractor Co.

For more facts, use Request Card at page 18 and circle No. 230

50-mile range

The company's RCA Carfone installation consists of four 15-watt base stations, three remote control units, and six 15-watt mobile units operating on a Citizen's Band frequency shared by a few other firms in the area. The master station is at the home office. Here, seven extension hand-set-type microphones—turned on throughout the day—serve company executives. A receptionist-telephone operator monitors radio calls, alerts persons called, and dispatches incoming phone messages via radio to the field.

An Andrews 4002 antenna is mounted on the main office roof, and a repeater station, with Mark Products high-gain antenna, is located in nearby Hollywood Hills at a 1,600-foot elevation. These stations give Larwin a 50-mile signal range.

Three other stations are located at the field offices in the Northridge, Norwalk, and the Buena Park sites. Remote-control units there are on duty in field construction shacks to keep construction supervisors in touch with headquarters and each other.

Five passenger cars and a roving company maintenance truck are also equipped with two-way radio.

Unit speeds construction

An early-morning user of the radio system is purchasing agent Bernard H. Moore. When Moore gets to the office at 7 a. m., he contacts the tract superintendents for standard early morning discussion of material shipments and labor schedules. They plan the day's activities before craftsmen report for duty and routine work begins.

Occasionally, when materials do not arrive on schedule, Moore contacts the project superintendent so that he can change his plans and put men to work on another job.

One of the Larwin project superintendents, Bill Holden, finds that the radio system provides him with a broad picture of operations and policy. He can keep track of sales, construction in other tracts, the latest developments in buying materials and equipment, labor schedules, and completion dates.

If Holden needs special materials or equipment immediately, he gets

CONTRACTORS AND ENGINEERS

by LAWRENCE WEINBERG, president
Larwin Co., Beverly Hills, Calif.
and
ROBERT Z. LATERZA, manager
Commercial Electronic Products
Radio Corp. of America, Camden, N. J.

word to the other construction superintendents and purchasing. Usually, the needed materials or equipment arrive on the same day.

Savings up to \$50,000

Before the RCA radio system was installed, the firm relied on telephones to contact the home office and personnel in the field. But land-line phones presented two major problems—it was difficult to obtain phones in new building locations, and sometimes these locations were in toll call areas.

The company found that it took more time to put a call through an operator, and frequently the lines

were busy. Now, Larwin saves from five minutes to an hour in contacting personnel, and the phone bill has been cut by at least \$500 a month.

The radios are invaluable in emergencies. Once, 7 inches of rain fell in 12 hours, overflowing storm drains, blocking streets, and knocking down powerlines in Los Angeles. At the time, Larwin was building in Norwalk and it was apparent that every home in the 250-house area was in danger. Larwin, directing emergency operations over the two-way radio, had the crew throw in sand bags and dig ditches. Conservative estimates show that about \$50,000 was saved in a few hours.

THE END.

how much does this discarded hank of tie wire cost you?



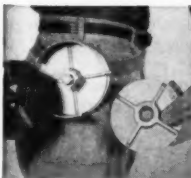
Ever walk around your job site and notice partly used hanks of tie wire like this lying around? You know how they got there. Your workers had to stop tying to perform some other job. They meant to come back for their wire, but...

Now stop and think what this discarded wire really cost you. First, there's the cost of the wire. Then there's the cost of "downtime" while "somebody goes after tie wire." And maybe the lost-time accident of the man who tripped over these booby

traps. And the cost of cleaning up the job site. And, on and on. *These old-fashioned hanks are robbing you of a large percentage of your profits.*

Change to Cal-Tie Wire on the handy reel dispenser. It's safe, your workers can do other work without losing their wire supply, and your job site will be far less cluttered. It's available in 14 through 20 gauge.

A CF&I representative will be glad to explain all of Cal-Tie's advantages to you. Contact him through the nearest sales office listed below.



CAL-TIE® WIRE

THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo
Billings • Boise • Butte • Casper • Denver • El Paso • Ft. Worth • Houston • Kansas
City • Lincoln (Nebr.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland
Pueblo • Salt Lake City • San Francisco • San Leandro • Seattle • Spokane • Wichita
WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo • Chicago
Detroit • New Orleans • New York • Philadelphia • CF&I OFFICES IN CANADA:
Montreal • Toronto • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton
Vancouver • Winnipeg 4614

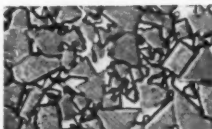
For more facts, use Request Card at page 18 and circle No. 231

AUGUST, 1957

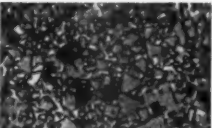


One of the superintendents at Mirada Park reports on grading progress at the job site, as an Allis-Chalmers 60 scraper speeds by to pick up another load of material.

Longer bit life—with new Sandvik Coromant X-Bits



Sandvik Coromant Tungsten Carbide. (Microphoto) Uniformity of size, even distribution of grain are marked. Free from porosity and impurities—therefore stronger, longer-lived.



Low quality Tungsten Carbide. (Microphoto) Black marks are contaminations caused by deficient production control. They weaken the carbide, reduce its working life.



NEXT time you buy bits, specify Sandvik Coromant because they give you more footage per bit, lower drilling costs. Here's why:

- 1 Only first-quality tungsten carbide is used—as shown in the microphotos above. This means less wear, longer life and a better job.
- 2 the bodies are precision-made of high quality alloy steel—tough enough to take the strain throughout the extra-long bit life.
- 3 the bigger Sandvik Coromant bits are all of X-design, which prevents rifling. No wonder Sandvik Coromant inserts are the most widely used in the world, drilling more than one billion feet every year.

THESE STANDARD SIZES ARE AVAILABLE

	THREAD	DIAMETERS AVAILABLE (IN INCHES)
SHOULDER TYPE	7/8" F	1 1/2
	1" H	1 1/2, 1 3/4, 1 7/8 and 1 7/8
	1 1/8" D	2, 2 1/4, 2 1/2, 2 3/4, 2 7/8 and 3
	1 1/4" K	3, 3 1/2, 4 and 4 1/2
BOTTOMING TYPE	1 1/4" Rope	1 3/4, 2, 2 1/4, 2 1/2, 2 3/4 and 3
	2" Rope	3 1/2, 4, 4 1/2 and 5
	400	2, 2 1/2 and 2 3/4
	600	2 1/2, 2 3/4, 3 and 3 1/2

The sizes underlined are X-shaped bits

SANDVIK COROMANT bits are supplied through Atlas Copco, the world's largest manufacturer of rock drills, who also supply Sandvik Coromant integral steels—the most widely used in the world—cross bits from 1 1/2" to 2 1/2" and extension steel equipment.

Write, phone or cable today for further details to any of the addresses below:

Atlas Copco

EASTERN — P.O. Box 2568 Paterson 25, N.J. Phone — Armory 4-3310
PACIFIC — 930 Brittan Avenue, San Carlos, Calif. Phone — Lytell 1-0375
CANADA — Montreal Airport, Quebec. Phone — Melrose 1-1871
MEXICO — Apartado Postal 56, Torreon, Coahuila. Phone — 39-07

DS7-78

For more facts, use Request Card at page 18 and circle No. 232

Names in the news



A. S. Marvin, chief engineer of the American Bridge Division, U. S. Steel Corp.

U. S. Steel Corp. names A. Marvin chief engineer

A. S. Marvin has been appointed chief engineer, American Bridge Division, U. S. Steel Corp., Pittsburgh, Pa. Marvin succeeds C. E. Webb who retired. Marvin started with the division as a draftsman in 1924. He later advanced to designer, assistant division engineer, division engineer, and then to assistant chief engineer of contracts.

Marvin is a member of the American Society of Civil Engineers, the Engineering Society of Western Pennsylvania, and the Western Society of Engineers.

G-E revamps engineering construction operations

The engineering and construction activities of the General Electric Real Estate and Construction Operation have been reorganized.

An engineering operation has been established with Joseph C. Nowell as manager of engineering. He will be responsible for all design and engineering work for major construction projects undertaken by the company. He will also have charge of the development of design standards for the new facilities of General Electric Co., Schenectady, N. Y.

Samuel T. Whitebread has been made manager of construction for the newly established construction operation. He will be responsible for the direction of construction on new facilities.

The headquarters for both new operations has been moved to the new offices of the Real Estate and Construction Operation at 1 River Road, Schenectady.

Allstates Design news

The Allstates Design & Development Co., Inc., Trenton, N. J., has appointed Robert J. Hannon to head the highway engineering group of the firm's engineering computer section. Hannon will be responsible for adapting the IBM 650 and 704 to all phases of highway engineering projects.

Under Hannon's direction, computer speeds of up to 40,000 calculations per second will be harnessed for cut and fill problems and design of bridges. Other technical projects to be handled by the group will include adjustment of line and grade, drainage flow, road interchanges, surveying closures, and reports.

Kuljian Corp. elects new vice president

Edward J. Healy has been elected vice president of construction of the Kuljian Corp., Philadelphia, Pa., engineers and constructors. Healy succeeds Hrand H. Levonian, who has been elected vice president of the firm.

Healy has had more than 25 years of experience in field and office administration of construction, and general supervision of a variety of projects. Projects he has worked on include industrial plants, refineries, pipelines, and office and institutional buildings.

At the same time, the firm appointed Hugh B. Ward purchasing agent. Ward joined the firm in 1943

and has since served as draftsman, designer, assistant construction manager, resident engineer in construction, and construction project engineer.

Assistant commissioner of BPR has retired

Arthur C. Clark, assistant commissioner for operations, Bureau of Public Roads, has retired. Clark had been with the BPR for 42 years. During that time he was responsible for all construction and maintenance operations on federal-aid and forest highway projects in Montana; and organized the first federal-aid highway operation in Puerto Rico.

He was also technical assistant and operations coordinator at the Wash-

ington headquarters for the construction of the Alaska highway. Following World War II and during the Korean conflict, Clark was responsible for determining requirements on all road improvements involving the use of steel and other scarce materials.

Clark is a member of the American Road Builders' Association, the Associated General Contractors, and the American Association of State Highway Officials.

American Gas & Electric elects vice president

S. N. Fiala has been elected vice president and chief engineer and Paul W. Emler was elected assistant vice president of American Gas & Electric



Dump in one second with Dumptor®

On the above operation, Koehring Dumptor drives up to the hopper, body forward. Operator trips the body-release lever, and gravity tilts the 6-yard body 70 degrees. One second later the load is out, and Dumptor is on its way back for the next load. Because there is no waiting for slow-acting body hoists, gravity-dumping saves 15 to 25 seconds on every round trip. This adds up to a substantial increase in extra yards per hour. For instance — take a typical 1,000-foot haul, where you normally would make 16 trips an hour. By saving an average of 20 seconds dump-time on each trip,

Dumptor gains 320 seconds, or 5.3 minutes more productive haul-time an hour. You get 17½ trips, instead of 16. This, alone, adds 9% to hourly production. What's more, there are no expensive hoist-replacement parts, or hoist maintenance time. Gravity-dump never wears out, never balks. You get the same one-second dumping every time, under heaviest loads, in all temperature extremes. Better check what this can mean in lower costs, and increased production on your hauling operations. Get the complete Dumptor story from your local Koehring distributor. Call him today.

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AUGUST

Service Corp., New York, N. Y. Fiala, associated with the firm's engineering department since 1934, has held such posts as mechanical engineer in charge of the mechanical engineering division, and chief engineer.

Emler, a member of the firm for more than 26 years, formerly held the position of director of industrial sales for AGE.

Gate City Steel news

Horace O. Titus, former chief bridge designer for the Wyoming State Highway Department, has been named chief design engineer at Gate City Steel, Inc., Boise, Idaho. Titus has also been associated with the American Bridge Co., and the South Dakota State Highway Commission.

Mitchell named chairman of National Joint Board

Richard J. Mitchell has been named to succeed John T. Dunlop as chairman of the National Joint Board for the Settlement of Jurisdictional Disputes by the construction industry organizations sponsoring the board. The selection was made by the Joint Negotiating Committees representing the Building and Constructing Trades Department of the AFL-CIO, the Associated General Contractors of America, Inc., and the national specialty contractor associations sponsoring the board.

At the same time, the committees announced that negotiations were continuing for changes in the board's agreement and procedures which will

simplify its operations. It is expected that this will eliminate many disputes which at the present time disrupt construction work.

Morrison-Knudsen news

M. H. Slocum has joined Morrison-Knudsen Co., Inc., Boise, Idaho. Slocum will be a consultant on project planning and construction for the firm's dam and power plant division.

Foundation Co. appoints

J. H. Tiernan has been appointed assistant to the president of the Foundation Co., New York, N. Y. Tiernan was formerly vice president of P. T. Cox Construction Co., which he had been with over 20 years.

M-C&S elects three construction officials

William Denny has been elected president of the Savin Construction Corp., East Hartford, Conn., and the Whaling City Dredge & Dock Corp., Groton, Conn. The two firms are subsidiaries of Merritt-Chapman & Scott Corp., New York, N. Y.

Denny, executive vice president in charge of M-C&S' construction department, succeeds A. I. Savin who retired. Savin will continue to serve the firm on a consultant basis. His son, Herbert C. Savin, has also retired as vice president of M-C&S and Savin Construction, and another son, Marvin C. Savin has retired as vice president and assistant secretary of Savin Construction.

G. G. Werner, Jr., vice president of M-C&S' construction department, has been named vice president and general manager of the two companies, and will be directly in charge of their operations under Mr. Denny.



Joseph S. Myers, assistant vice president of Merritt-Chapman & Scott Corp.

Joseph S. Myers has also been elected assistant vice president for the firm's construction operations. Myers, who has been associated with M-C&S for 11 years, has served since 1954 as a vice president of Merritt-Chapman & Scott Overseas, Inc., a subsidiary engaged in foreign construction.

A specialist in marine and heavy engineering construction, he recently has been responsible for directing extensive pipeline jobs and other heavy construction in Australia, New Zealand, India, and Spain.

Intrusion-Prepakt names regional, district managers

C. H. Ferguson has been made regional manager of the San Francisco, Calif., office of Intrusion-Prepakt, Inc., contracting firm of Cleveland, Ohio. Ferguson joined the firm in 1952 as regional engineer in the Seattle, Wash., office, and then was promoted district manager.

He is a member of the American Society of Civil Engineers, the Society of American Military Engineers, and the American Concrete Institute.

F. O. Walker is now a district manager in Atlanta, Ga. He came to Intrusion-Prepakt in 1952 and advanced to the post of operations superintendent a year later. Previously, he was associated with the U. S. Maritime Commission and Eastern Air Lines.

Lummus Co. appoints

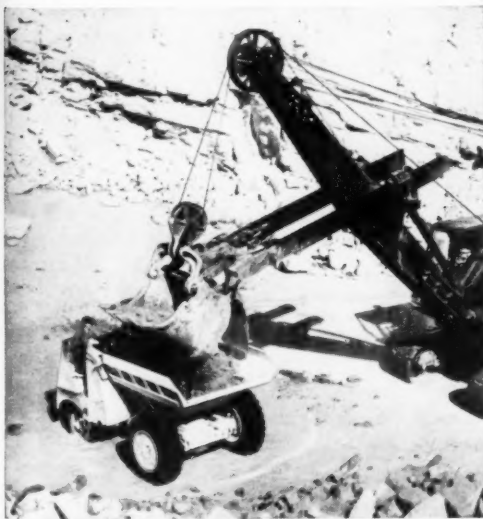
Marvin Marcus has been appointed sales manager of government operations for the Lummus Co., New York, N. Y., engineers and constructors. Marcus will make his headquarters in the Wyatt Building, Washington, D. C.



Plenty of power on the haul — You get better than 6 h.p. for every ton of loaded weight when you haul with heavy-duty Dumptor. That's why it accelerates fast, pulls through soft ground, up ramps and grades with less shifting — climbs 24% grades fully loaded. When hauling heavy materials, extra horsepower means extra load-carrying capacity.



No-turn shuttle hauling — Dumptor solves problems of operating in tunnels, along overhead trestles, or narrow haul roads. There is no need to turn, because it travels with equal ease, power and speed in either direction. No-turn hauling offers a big production advantage, too. Every turn saved cuts 15 seconds off cycle time, increases output.



Easy-loading target — Big, 64 square-foot body opening permits loading Dumptor over the side or either end. This saves spotting time, reduces spillage. Heavy duty body is built for rock. Top edge and bottom are box-beam constructed. Sides and ends are rib-reinforced. In fact, Dumptor has a ton of strength for every ton of payload capacity.



Time-saver on stockpiling — Dumptor puts stockpiling on a fast shuttle-haul basis — eliminates turning on top of pile. Notice how instant dumping action kicks the load out over edge of pile — saves a lot of dozer clean-up. Free-swinging kick-out pan breaks load suction in wet, sticky materials, bolts down to floor when handling rock.

KOEHRING COMPANY, Milwaukee 16, Wis.

Subsidiaries: PARSONS
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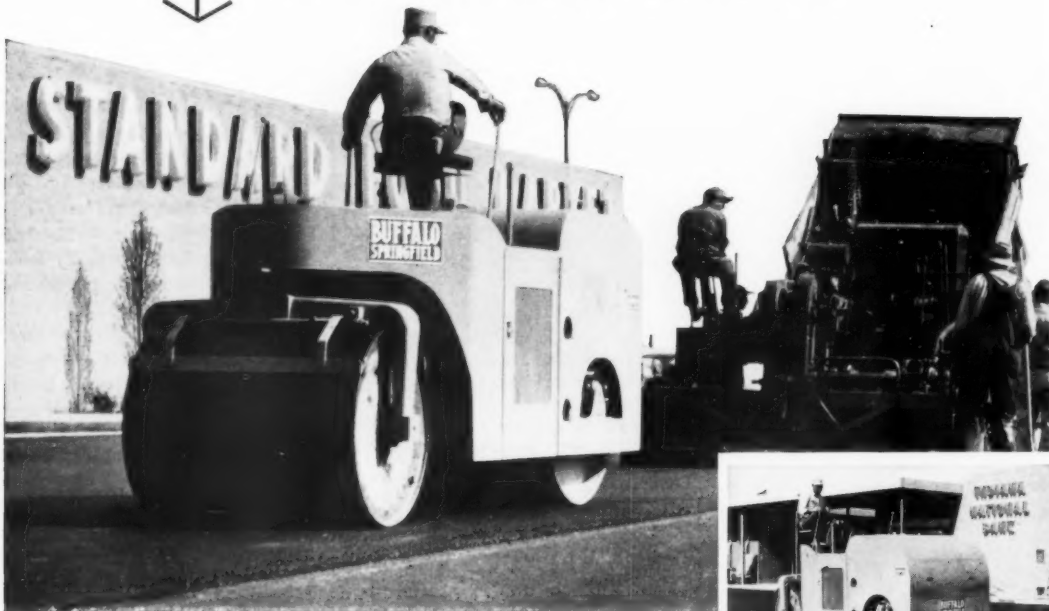
For more facts, use Request Card at page 18 and circle No. 233

Sled, barge pull outfall sludge line into place at 300-foot ocean depth



Pipe sections are pulled through the 1,000-foot offshore launching pier. Cathodic protection cable is banded to the pipe spaced at regular intervals. In the background are the control tower and Hyperion Treatment Plant.

Suburban shopping center parking area is "easy rolling" for **BUFFALO-SPRINGFIELD** Standard-Duty Tandems



Above: A Model KT-15A8 follows a paver at Indianapolis' Eastgate shopping center. Right: Compacting 2" asphaltic concrete wearing course with an 8-10 ton Buffalo-Springfield Standard-Duty Tandem.

Shumaker Brothers Industries, Inc., contracted to pave the roadways and parking areas for Indianapolis' new 66-acre, \$7,500,000 Eastgate 56-store shopping center.

The paved area of 128,000 sq. yds. required 43,400 tons of stone, 14,080 tons of asphaltic concrete, and 40,000 gallons of MCO liquid asphalt. Total depth of roadways is 10", parking areas 8". For the fast, efficient compaction of the stone base and the 2" asphaltic concrete wearing course, Shumaker relied upon his Buffalo-

Springfield Standard-Duty Tandem Rollers.

Standard Duty Variable-Weight Tandems are available in 5 sizes: 5-8, 6-9, 8-10, 8-12 and 10-14 tons. Outstanding design and construction features include: choice of highly efficient gasoline or diesel power • finest adjustable bevel gear final drive • single power unit assuring precision alignment of final drive, engine and transmission • popular torque converter drive for speeds up to 5.6 mph. • jig-assembled, specially

stressed all-welded frame • compact, low-pressure hydraulic steering • and adjustable, tapered roller bearing yoke and king pin assembly.

Contractors the country over use Buffalo-Springfield Standard-Duty Tandems... the finest rollers, for the dollar invested, on the market today. Before you buy, check their job-tested, proven-better features for road roller performance, economy, reliability and efficiency. Ask your Buffalo-Springfield distributor for details, or write for Bulletin S-68-R 157 now!



BUFFALO-SPRINGFIELD ROLLER CO.
DIVISION OF KOEHRING COMPANY • SPRINGFIELD, OHIO

For more facts, use Request Card at page 18 and circle No. 234

A 7-mile-long, 8-million-pound pipeline for the City of Los Angeles' Hyperion Treatment Plant is nearing completion as part of a \$60 million sewerage system expansion to meet the requirements of a rapidly growing population. The \$2,629,000 ocean outfall sludge line terminates at a 300-foot depth in the ocean.

Contractor for installing the line is Healy-Submarine-DeLong, a joint-venture of Healy Tibbitts Construction Co., San Francisco, Calif.; Submarine Pipeline Construction Co., Port Lavaca, Texas; and DeLong Corp., New York, N. Y. While the contractor's crews were constructing a 1,000-foot offshore launching pier, other crews were cleaning and priming 40-foot lengths of 3/4-inch-thick, 22-inch-outside-diameter pipe.

Pipe wrapping

After the pipe had been cleaned and primed, it received a triple coat of Koppers 70B enamel reinforced with Fiberglas. It was wrapped with enamel-impregnated felt, and delivered to United Concrete Pipe Corp., Baldwin Park, Calif., to be cement mortar lined and coated. The finished pipe had to meet a plus or minus tolerance of one pound per linear foot, since it had to have an initial negative buoyancy of four pounds per linear foot when submerged, empty, in sea water. To meet these requirements, United Concrete centrifugally spun a 1/2-inch lining within plus or minus 1/8-inch tolerance. Between the two outside coats of cement mortar was a 12-gage 2x4 galvanized, self-furring crimped wire mesh. Over the mesh was a mortar coating ranging in thickness from a maximum of 1 1/4 inches to a minimum of 1 1/8 inches. The pipe weighed approximately 8,500 pounds per 40-foot joint, and had approximate diameters of 20 inches inside and 24 inches outside.

The sludge line consists of 927 40-foot joints of pipe. As a preparatory step, all of the pipe was welded into 15 joint sections, 600 feet long. A joint-lining machine was used inside the pipe to connect the sections, and enamel, wire mesh, and gunite was used on the outside.

Launching the pipeline

Although the continuous 7-mile-long pipeline weighed 8 million pounds, the buoyancy of the empty

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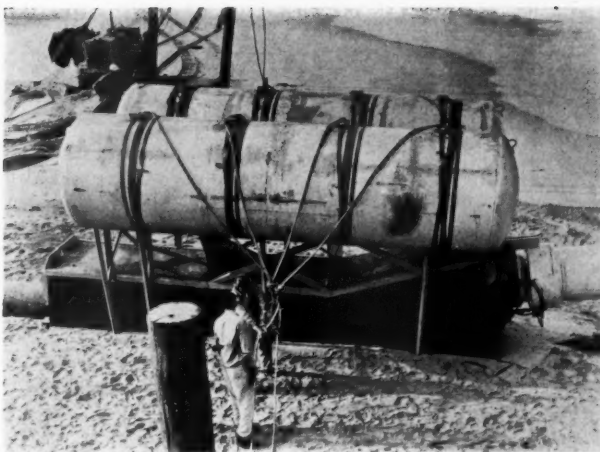
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AUGUST

**Crews and equipment work around the clock
to complete pulling operations for continuous
7-mile-long pipeline in 7½ days**

The 60,000-pound pulling sled was specially designed to serve as a pulling nose and, ultimately, as an end anchor for the pipeline. The two special pontoons, each 5 feet in diameter and 18 feet long, absorb the weight of the sled during pulling operations.



pipe in salt water reduced the weight to approximately 147,000 pounds. A 60,000-pound "pulling sled" was specially designed to serve as a pulling nose and, ultimately, as an end anchor for the pipeline. Double pulling cables were attached to the nose by a 5-foot outside diameter sheave.

Complying with specifications that no steel in contact with sea water could be welded to the pipe, the sled was designed with a concrete portion through which the pulling load was transmitted to the pipe. During pulling operations, the weight of the sled was absorbed by two special pontoons, each 5 feet in diameter and 18 feet long. The end of the pipe was held 3½ feet from the bottom.

A special launchway, consisting of steel cradles with pneumatic rubber tires spaced about 60 feet apart, paralleled the 600-foot sections of pipe that were strung out on the beach. The launchway extended 1,000 feet farther out on a lower tier of the pier and gradually slopes down near the end to ease the pipe into the water without stress. Side-boom tractors operated on the top level of the pier to move successive sections of pipe into position for welding.

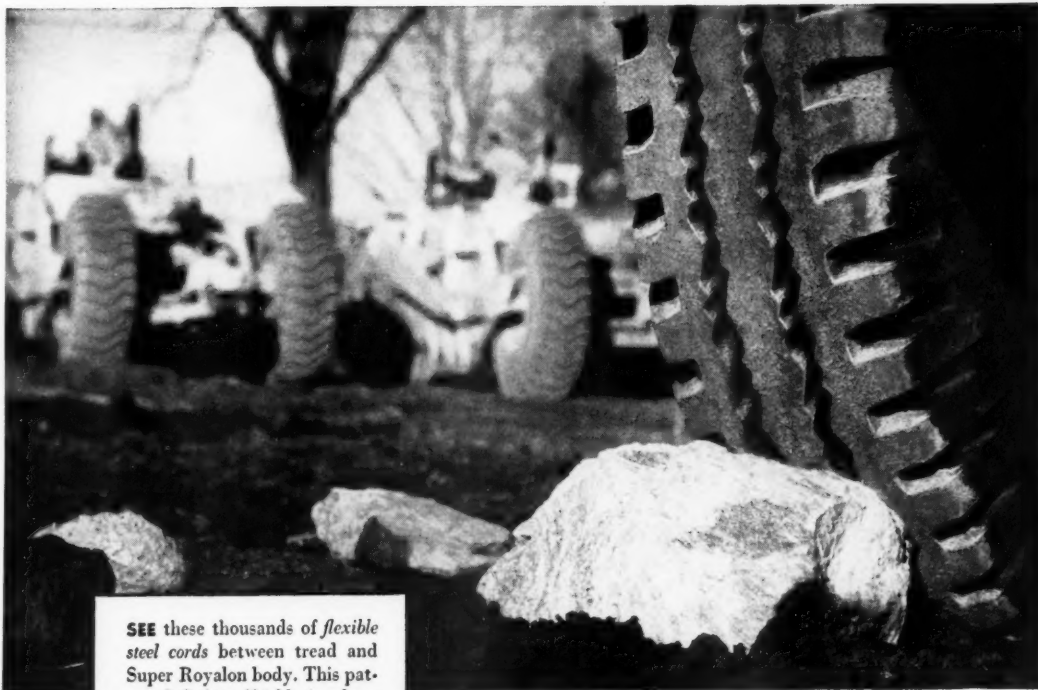
When the pipe on the launchway had been pulled out, the end was held securely by a standing holdback and another 600-foot section was rolled over onto the launchway and moved ahead to a welding station at the standing holdback. Then, another section was moved into place at the second welding station as the first joint was being made. After the two joints had been made, the 1,200 feet of pipe was pulled into the water at about 50 feet per minute, and the operation repeated.

Prior to the launching, a pig, a plug, and a keeper plug were installed in the cone-shaped end of the pipe to keep out sea water and to permit the final 130 psi hydraulic test after installation. This assembly is held in place by a precalibrated breakbolt. After the final test, internal pressure will be increased to 200 psi which will overcome the external force and breakbolt capacity, permitting the pig to act as piston to eject the end sealing components.

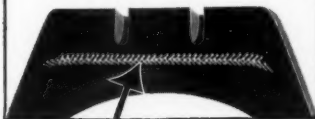
Pulling operations

A huge, double-line winch cable, capable of pulling more than one million pounds, was used to pull the pipe into the water. (Continued on next page)

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United States Rubber

Rockefeller Center, New York 20, N. Y.

In Canada: Dominion Rubber Co., Ltd.

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As a standing holdback secures an end of the pipe already in the water, new sections are rolled into position. A Caterpillar tractor with side-boom assists in rigging a new section for welding.

(Continued from preceding page)

lion pounds, was used to pull the pipe. Powered by a GMC 6-110, 320-hp diesel engine, the winch was mounted on the deck of a converted landing craft that served as the pulling barge. The barge was held in alignment by six anchors. By means of a double line of 2-inch cable, the barge pulled against a special 160,000-pound end anchor. The friction of this cable against the bottom added to the holding power.

After the pulling winch had pulled part of the pipeline out, the barge

was moved farther out by taking in on the end anchor double line and letting out the pulling lines. A total of 52 moves was made. The end anchor lines had a series of nine blocks which permitted spooled-in cable to be removed from the pulling barge as each block was reached. As the pipe was pulled, a restraining force of 20,000 pounds was maintained by a holdback winch on shore. This steady tension prevented the pipe from running ahead of the pulling cable and helped maintain accurate alignment and complete control of the pipeline.

When the pulling sled with the end of the pipeline reached its final location, a tug on a line at the surface moved an eccentric arm device which cut the steel bands fastening the pontoons to the sled, freeing them to rush to the surface and allowing the sled to exert its full negative weight as an end anchor. A series of concrete blocks in pairs with a chain over the top of the pipe will secure the line back to 6,000 feet from the shore, from which point it will be buried.

Work continued on a round-the-clock basis while the pipe was being pulled. An average of 4,800 feet of pipe was pulled into the water every 24 hours, and the complete pulling operation was finished in 7½ days.

Work keyed to radio

Fifteen 2-way radios provided communication during the pulling operation. The radios were located in the control tower at the water's edge, at both welding stations, at the pulling winch on the barge, on the deck of the barge, at the holdback winch, in the main office, the X-ray trailer, crew boats, tug boats, and the derrick barge. A helicopter on constant duty provided quick transportation to and from all operating points at sea.

All joints were X-rayed and the enamel coating tested with an electric flaw detector. Martin-Decker recording dynamometers were on the pulling cable and on the holdback cable, and direct visual reading hydroscale dynamometers were used at these locations for verification. The exact location of the pulling sled and underwater course of the pipeline were located and charted by automatic recording fathometers.

On the inshore end, Submarine Pipeline's patented trenching machine is being used to bury the first 6,000 feet of pipe. This underwater machine straddles the pipe as it rests on the bottom, and high-pressure streams of water and air are pumped through a series of jet nozzles mounted at predetermined intervals and angles. The air and water are fed into the machine by a series of manifolds connected by high-pressure hose to a series of pumps and compressors on the trenching barge. As the trencher moves along the pipe, it undermines the bottom material

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16' LOADING CLEARANCE

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20' DIGGING DEPTH

The ONLY unit
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Backhoe or bucket, in any soil, watch this powerful new HOPTO 360 go. It's completely hydraulic with a new split hydraulic system. A 90 GPM triple tandem pump feeds a new split valve bank for a new high in hydraulic efficiency . . . faster, cooler, more powerful!

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HOPTO's 90 gallon per minute hydraulic system packs the power for fast-cycling ½ yard backhoe capacity with a full 360° swing . . . and 180° bucket tilt! You can dig 20 feet deep, swing to 30-foot ground reach, load at 16 feet. New twin 6-inch ID boom cylinders transmit 90,000 pound force . . . increases lifting capacity and down pressure! Individually operated hydraulic outriggers with foot pads for greater bearing pressure are standard equipment. Choice of buckets and backhoes with replaceable H and L teeth equip the HOPTO 360 for a wide variety of more profitable work.

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- FEWER WORKING PARTS
- 30 SECOND SET-UP

BADGER MACHINE COMPANY

DEPT. E • WINONA, MINNESOTA

For more facts, use Request Card at page 18 and circle No. 236

and the pipe settles gently in the ditch.

Personnel

Engineering for the project was handled by Hyperion engineers, a joint venture of Daniel, Mann, Johnson & Mendenhall; Holmes & Narver, Inc.; and Koebig & Koebig, all of Los Angeles, Calif. Project manager David L. Narver, Jr., is assisted by E. H. Graham, Jr.; and E. E. Walsh is resident engineer.

The Healy-Submarine-DeLong joint-venture has Robert Helen of Healy-Tibbitts as project manager; S. V. Collins, president, and F. O. Wakefield, general superintendent, represent Submarine Pipeline Construction.

Los Angeles officials active on the project include W. T. Anderson, inspector of public works; W. R. Albritton, supervisor of special projects; and J. H. Holmes, senior project inspector.

THE END

Powder actuated tool code discussed in free booklet

The powder actuated fastening tool industry has developed a code covering the safe operation of tools. The code was promulgated to serve as a guide to state agencies in creating regulations covering the use of the tools.

The code suggests that all powder actuated tools be equipped with a protective shield or guard; that the firing mechanism be so designed that the tool cannot fire during loading or preparation to fire, or if the tool is dropped while loading. It also points out that the tool be designed so that the degree of penetration be controlled; that all breeching parts be visible for easy inspection; and that the construction of the tool be such that all parts of the tool be of adequate strength to resist maximum stresses expected when firing.

The free booklet may be obtained from the Powder Actuated Tool Manufacturers' Institute, Inc., 250 E. 43rd St., New York 17, N. Y.

Film on safety practices to be used with chain saws

Homelite Division, Textron, Inc., Port Chester, N. Y., has released a 25-minute, 16mm color film on "Chain Saw Safety Pays Off". Made with the cooperation of the American Pulpwood Association, the film stresses proper maintenance and care of the chain saw, safe clothing worn on the job, the correct way to handle the chain saw in cutting, the proper stance to take, and the special ways heavy logs can be lifted and stacked safely by one man.

Photographed on location, the film shows the men at work in actual pulpwood and sawlog operations observing proper safety practices while achieving high production with the chain saws.

Prints of the film are available to groups or individuals from Mr. J. Howard Maxwell, Jr., Sales Promotion Manager, Homelite Division, Port Chester, N. Y.

THIS NEW DOUBLE-DUTY WORLD, the largest globe of the earth to scale, is a steel Hortonsphere full of gas for the ranges and water heaters of Savannah, Ga. Constructed by Chicago Bridge & Iron Co., Chicago, Ill., the vessel has a 600,000-cubic-foot storage capacity for gas at 75-psi pressure for the supply lines for the South Atlantic Gas Co. The mapping scale is 1 to 750,000. The sphere will be made available by the gas company for educational and sight-seeing tours.





MODEL C-362
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"SALES RIGHT THRU"

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DUAL BALANCE CONSTRUCTION—Precision weight distribution for ① Easy Maneuverability... one man lifts-ups, lines-up, then saws, ② Constant adequate weight over the blade during cutting. Only Clipper has it!

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430X



For more facts, use Request Card at page 18 and circle No. 237



Commercial stone in 6, 3, 1½, and ¾-inch sizes is hauled to the site in 20-ton-capacity TEC frameless trailers pulled by White tractors. It goes by belt from the ground-level hopper to the overhead stockpiling conveyor, background.

Sand for concrete mix produced from excavation for river lock

Huge crushing, processing, and stockpiling system supplies aggregates for concrete plant operation

by ANTHONY N. MAVROUDIS,
field editor



The 2,300,000 yards of lock excavation supply the material for sand. The Osgood crane uses a 3-yard dragline bucket to load a Euclid 18-yard rear-dump that hauls to the crushing-screening unit producing sand for the concrete mix.

A complex but efficient crushing, screening, and stockpiling setup is being used by The Savin Construction Corp., East Hartford, Conn., to supply and store the aggregate for the 430,000 cubic yards of concrete being turned out for the New Cumberland Lock project on the Ohio River at Stratton, Ohio.

This \$16,312,000 U. S. Army Corps of Engineers project, being supervised by the Pittsburgh District, will eliminate three existing locks and speed the passage of barge tows on the heavily-traveled Ohio River.

Stone hauled in

The four stone sizes used on the job



A Euclid charges the grizzly, which has a reciprocating feeder dumping onto the 30-inch conveyor belt leading to the screening unit. The upper belt, a return belt, feeds runoff to the Telsmith crusher, which dumps to the primary belt.



Some sand from the Lippman screens is reduced by Marcy rod mill, goes to a sump, is delivered by a Wilfley sand pump to a Telsmith classifier feeding the blending belt. Minus No. 100 sand goes to a classifier feeding the blending belt.

CONTRACTORS AND ENGINEERS



The 430,000 yards of concrete required by the lock is turned out by this completely automatic Johnson plant, which has three Koehring 2-yard tilt-type mixers. Cement is stored in the 8,000 and 800-barrel ground silos and the 400-barrel plant bin.



Part of the excavation job for the lock is handled by a Euclid twin-engine scraper push-loaded by an International TD-24. Nine of these scrapers are working at the site, stockpiling most of the excavated material for use as backfill.



One of the two sumps needed in the cofferdam area to overcome drainage problems is dug by a Lorain truck crane with a clamshell bucket on a 90-foot boom. The shortage of steel made it necessary to build the cofferdam, background, of timber cribbing.



A Bucyrus-Erie 54-B gets ready to strip wood forms from a pour on the 1,200-foot-long lock. Lifts for the walls, which rise 70 feet above bedrock, are being held to a maximum of 5 feet and are being water-cured for a period of 14 days.



The 1,800-foot-long cofferdam consists of a combination of earth-filled timber cribbing and sheeting. The 12x12-inch timbers form sections 40 feet long, 30 to 35 feet high, and from 50 to 24 feet wide.

(Continued from preceding page)

ing units on the move.

Since State Route 7 separates the cofferdam area and the crushing, stockpiling, and concrete batch plant area, and the contract called for the state route to be relocated, Savin bridged the haul road with the state route during the relocation work. This eliminates the need for trucks to cross the heavily-traveled state road, the need for flagmen, and a loss in hauling time.

Grizzly feeds conveyor

Excavated material is dumped into a grizzly, equipped with a reciprocating feeder, which deposits the material on a 30-inch-wide inclined conveyor belt that bypasses a Tel-smith crushing unit. The belt carries the material up to a Lippman vibrating-screening unit consisting of double and single-deck screens. The top double-deck unit has 3, 1½, ¾-inch, and No. 4 openings, and the bottom single deck has No. 8 (½-inch) openings.

All the material running off the 1½-inch screen is picked up by a 30-inch-wide return belt that feeds the Tel-smith crusher. After this stone has been reduced by the crusher, it is dropped onto the inclined belt that bypasses the crusher. The crushed stone then returns to the Lippman screening unit, together with the unprocessed material leaving the grizzly. This cycle is continued until all the material passes through the No. 4 screen and into a sand bin equipped with a Syntron feeder.

Part of the No. 4 sand is fed by the Syntron feeder to a short belt that dumps into a Marcy rod mill for further reduction. The reduced sand falls from the rod mill into a sump, where it is picked up by a Wilfley sand pump and pumped to a Tel-smith twin-screw classifier. Here, sand not passing a No. 100 sieve leaves the classifier and goes through a bin equipped with a Syntron feeder to be picked up by a blending belt. The minus No. 100 sand remaining in the classifier overflows into a second sump, where it is again picked up by another Wilfley sand pump and pumped to a classifier that also feeds the blending belt. All the silt removed is wasted.

The sand fed to the blending belt has a fineness modulus of about 2.70 and, according to contract specifications, can only vary from this fineness modulus plus or minus 0.15. The 30-inch blending belt feeds the sand to an inclined conveyor belt that transfers the material to a second shuttle conveyor riding the overhead stockpiling conveyor. Sand is then dumped into one of three sand stockpiles by the shuttle conveyor, and a period of at least three days elapses before sand is used in the concrete mix.

Concrete plant automatic

A 470-foot-long reclaiming tunnel, 8 feet high and 6 feet wide, runs beneath the stockpiles to transfer aggregates to the concrete batch plant. Constructed with 4×8-inch laminated timbers, the tunnel is equipped with

nine Syntron feeders that feed sand and stone to the 30-inch-wide reclaiming belt. The Syntron feeders are electrically operated by the batch plant operator as different sizes of aggregates are needed. The reclaiming belt carries aggregates to a swivel chute atop the batch plant's aggregate bin, where they are charged into one of the storage compartments.

This Johnson batch plant, equipped with three Koehring 2-cubic-yard tilting-type mixers, is completely automatic. The simultaneous charging of the batchers is started and stopped as a single button on the control panel is pressed, activating a system of pull wires connected to the various batchers and pre-set weighing scales. The weights of each ingredient making up a batch are permanently re-

corded, together with the time of release, on a strip recorder.

When charging stops, the batchers are opened simultaneously and the ingredients fall through a swivel chute into one of the three mixers. After the 2-minute mixing cycle, the mixer tilts automatically and the concrete dumps into a wet-batch hopper. The batch is then released into a waiting concrete bucket. The contents of two mixers are needed to fill one of the Blaw-Knox 4-yard air-operated concrete buckets being used on the job. These buckets are being transferred to the pours by a fleet of Mack tandem trucks.

Cement furnished by Universal Atlas Cement Co. is delivered to the plant site by bottom-dump rail cars riding on a contractor-built spur. The

cement is picked up from the under-track hopper and screw conveyor by an enclosed bucket elevator which, through a three-way connection at top, fills the 8,000 and 800-barrel ground storage silos, as well as the 400-barrel cement bin in the center of the batch plant's aggregate bin.

Lock construction

The parallel locks, scheduled for completion in October, 1958, consist of a main lock chamber, 1,200 feet long and 110 feet wide, plus an auxiliary lock chamber, 600 feet long and 110 feet wide. Both will have a maximum lift of 22 feet. Lock walls have an average height of 70 feet above bedrock and a maximum base width of 50 feet.

The upstream guard wall will be

ANNOUNCEMENT

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3 Reasons for Increases

What led to these increases in Timken bearing capacities? Three things: First, a careful review of more than 6,000 different laboratory studies



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

started as USS MP 112 sheeting is driven to form the 25½-foot-diameter cells on 44-foot centers. Fourteen 10-inch H-piles will then be driven inside each cell and cut off at the same elevation as the tops of the cells. The cells will then be filled with gravel to a point 18 inches below the tops of the cells and capped with a concrete wall that will be 24 feet high and 900 feet long. The wall will have a 27-foot-wide base, and a batter will give the top a width of 7 feet.

Lock wall pours

Pours for the lock walls are being made in forms fabricated on the job with ½-inch-thick ship-lap sheeting and 2×6-inch studs on 12-inch centers. Williams form hardware is being used exclusively. Mass pours are held

to 5-foot lifts, and concrete consolidation is being handled by Malan vibrators.

Air is supplied to the pours by a bank of two Joy 500-cfm air compressors that feed through a Naylor Spiralweld 6-inch-diameter line running along the berm of the excavation. Rubber hoses, used in green cutting and consolidating the concrete, tap air from the main line.

The concrete pours are water-cured for at least 14 days. The specifications provide five days between lifts. During the past winter, Savin took several precautions as concrete operations continued. Insulated forms, heated aggregates and water, and steam-curing enabled the job to be carried on, even though temperatures dipped below freezing. Whenever the

temperature fell below 40 degrees, the contractor covered the pours with tarps and fed live steam through two 2-inch lines for a period of at least five days.

Cofferdam construction

A combination of earth-filled timber cribbing and sheeting were used to build the 1,800-foot-long cofferdam, since there was a shortage of steel sheeting at the time. The timber crib sections, made of 12×12-inch timber, are about 40 feet long, 30 to 35 feet high, and vary in width from 50 to 24 feet. A total of 2,700,000 board-feet of just 12×12-inch timbers went into the cribbing used for the cofferdam.

The Manitowoc 3900 and the Marion 111 cranes, equipped with Esco

4-yard dragline buckets, were used to push the cribbing out from shore at each end of the cofferdam. After the first crib had been floated into position, it was sunk by being filled with excavated material obtained by the draglines from the cofferdam area. Then the cranes were able to walk out onto the cribbing to position and sink another crib section adjacent to the first. The crib sections were floated out into the water and towed into position by the cranes, which backed up on the cribs already placed. This method was used by both cranes until the area, measuring about 1,800×420 feet, was encircled by the cofferdam.

After the cranes had positioned and sunk a crib section, the interlocking sheeting was driven along the river side of the cribbing. The cranes, riding on the cribbing, used Vulcan No. 1 hammers to drive the 60-foot-long sheeting as close to the cribbing as possible.

Once the cofferdam was complete, Savin set six Fairbanks-Morse 12-inch electric pumps around the cofferdam area to start the unwatering. This took about ten days, with all the pumps working 24 hours a day.

Unwatering complete, the job of removing more than 2,300,000 cubic yards of earth and rock got under way. But a heavy rainfall during the season created a serious drainage problem and, as soon as rock was reached, a Lorain truck crane with a clamshell bucket on a 90-foot boom excavated two sumps—one on the river side and one on the shore side of the cofferdam area. Each sump was fed by smaller pumps and ditches spotted throughout the excavation. Water in the sumps was pumped out by 12-inch electric pumps.

Excavation

The bulk of the earthmoving operations is being handled by nine Euclid twin-engine scrapers. Two push-tractors—an International TD-24 and a Caterpillar D8—are being used to keep the scraper fleet loaded to capacity and on the move. Most of the earth excavation handled by the scrapers is being hauled to a stockpile area located behind the crushing and screening setup. Later, this material will be used as backfill around the new lock.

The remaining quantity of earth and rock is being removed by the twelve Mack dump trucks and five Euclid rear-dumps, which haul to the crushing and screening unit producing sand for the concrete mix. Cranes working on excavation, concrete placing, and sump construction include a Manitowoc 3900, a Marion 111, a Bucyrus-Erie 54-B, two Lorain truck cranes, and an Osgood.

Robert B. Jenkinson is the project manager; Herman Jolly, general superintendent; Arthur W. Bartlett, concrete superintendent, and G. H. Blessis, project engineer, for Savin Construction Co. Charles H. Wagner is the resident engineer on the project for the Pittsburgh District of the U. S. Army Corps of Engineers, which is headed by Col. Harold E. Sprague, district engineer.

THE END

UNCING!

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of Timken bearing performance on fatigue life machines. From these exhaustive studies, conducted on an organized, scientific basis since 1924, we keep learning more and more about predicting bearing life. Second, refinement in the method of analyzing these studies mathematically.

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To find out how the new capacity ratings affect the types and sizes of Timken bearings in which you are interested, call your Timken bearing representative or write our Engineering Department. We'll be glad to work with you at the drawing board stage. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

APERED ROLLER BEARINGS ROLL THE LOAD



Bucyrus-Erie cranes work at either end of the east half of the old viaduct, clearing away the span and abutments. This part of the job took from Friday morning to Sunday afternoon, with crews working round the clock. Trains were routed over the west half of the viaduct during the five-day job.

East half of railroad viaduct replaced in five-day job

Between 9:20 a.m. on a Friday and 1:15 a.m. the following Wednesday, a 287-foot-long and 1,200-ton east half of a railroad viaduct was moved 42 feet, dropped 7½ feet into place, and tracks turned over to the train dispatcher.

But more than the size of the job or the five days needed for its completion attracted a number of engineers and construction men to Evans-ton, Ill., for a first-hand look at the job.

A share of their interest was concerned with the system of lowering the jacks supporting the new viaduct, as well as the communication system used to control the lowering-in operations.



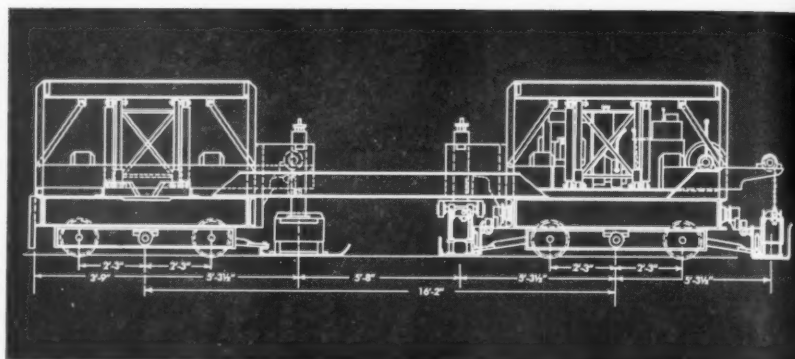
The new bridge section stands beside the virtually demolished half of the viaduct, ready to be moved into place. This girder will be the center girder when the other half of the viaduct is replaced. Heavy rollers under the girders enable the section to be rolled along H-beams, which are supported by cribbing.

Friday and Saturday

Throughout the 5-day period, more than 200 men worked round-the-clock on the viaduct-moving phase of this \$2.2 million job, which includes the 287-foot-long east half of the viaduct; the 323-foot-long west half of the viaduct, which was to be moved into place later; and the construction of a new road and approaches. The east section of the viaduct, built by Bethlehem Steel, was assembled by the contractor, M. J. Boyle Co., Chicago, before demolition of the east half of the old viaduct got under way.

The new, 1,200-ton section, com-

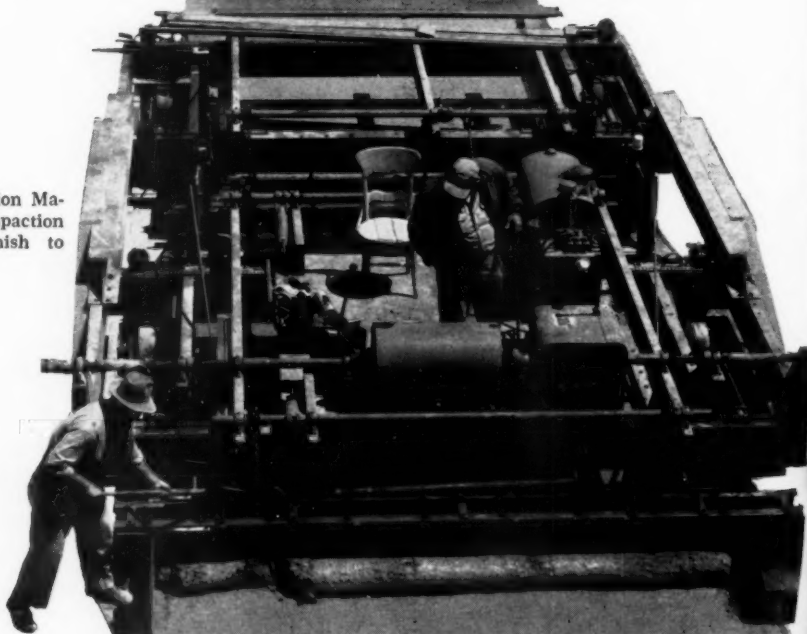
Two Detroit Special finishing machine frames engineered into one rugged unit combining finisher and float operation. Equipped with quick crown change screeds. Supplied in either 12' to 18' or 20' to 25' working widths. Hydraulically controlled pneumatic tired transportation assemblies optional.



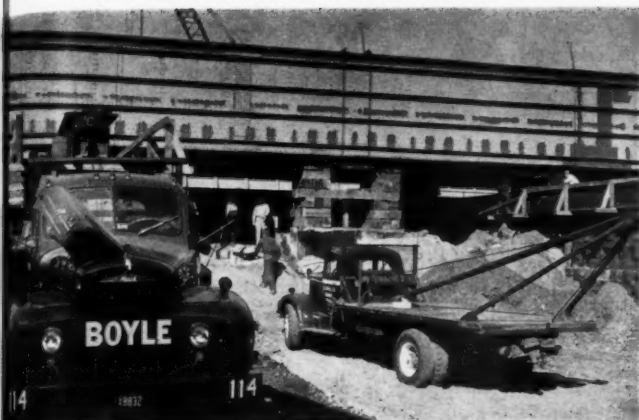
FLEX-PLANE

First Again
with Faster — Finer — Finishing Combination

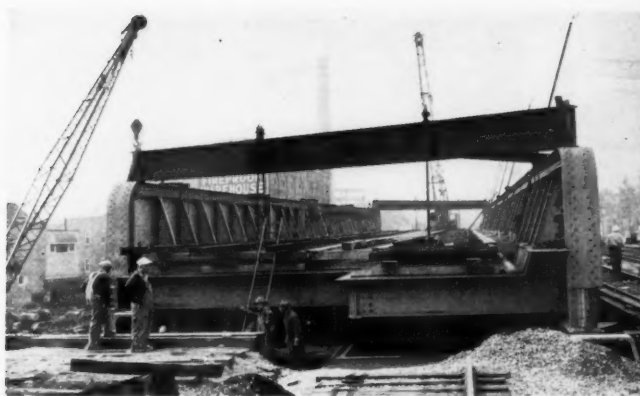
"FLEX-PLANE" Combination Machine gives greater compaction and applies superior finish to Connecticut Turnpike.



WORLD'S LARGEST BUILDER OF CONCRETE FINISHING EQUIPMENT



Black truck—one of two with steamboat ratchets and winches—gets ready to pull section into place. The cable passes from the truck over the sheave and through center part of the H-beam. One of the Rodgers hydraulic jacks used to lower section is in place between cribbing, center.



Moved 42 feet into place, the section is being lowered 7½ feet to its final position on Monday morning. East and west girders were lowered alternately, about three inches at a time.

U. S. ROUTE 16—near Farmington, Michigan. Loselle Construction's Combination increases daily finishing average

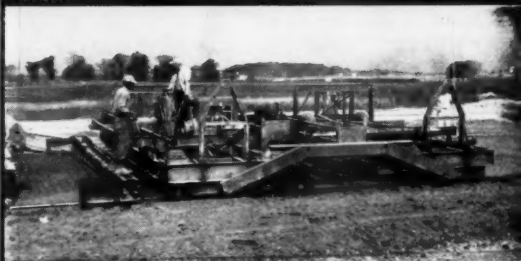


"... 4400 feet of 22-foot pavement finished in one day." ... "keeps up with three dual drum pavers." ... "450 lineal feet of 24' pavement per hour." These are typical reports from contractors using the revolutionary new Flex-Plane Combination Finisher-Float Machine which does the combined jobs of transverse and longitudinal finishers. On the average, users finish over 3000 feet of pavement a day, requiring only two or three hand finishers depending on type of joints being used.

On-the-job checks show longitudinal surface smoothness to be unsurpassed by any other equipment regardless of condition of forms. Results prove it to be the fastest, most efficient finishing machine in use today.

But why not get all the facts? Write today for your copy of the data-packed "Flex-Plane Finisher-Float Machine" brochure. See for yourself why contractors consider it the finest machine of its type in the world.

U. S. ROUTE 30—J. A. Jones Construction Company uses combination machine on straightaway paving—Flexplane self-widener on interchanges near Mansfield, Ohio.



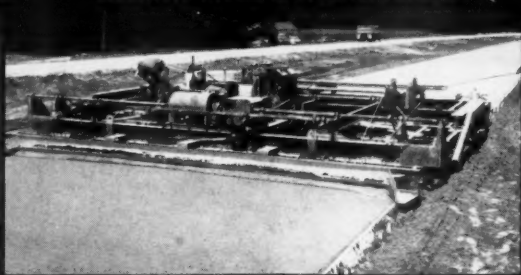
CONNECTICUT TURNPIKE—DeLillo Construction Company's Combination cuts hand finishing to a minimum.



U. S. ROUTE 12—Kalamazoo, Mich., bypass is worked by Carl Goodwin & Sons. Contractors generally report substantial savings over previous finishing methods.



U. S. ROUTE 23—Combination Machine owned by Denton Construction Company keeps up with three dual drum pavers south of Brighton, Michigan.



THE FLEXIBLE ROAD JOINT MACHINE COMPANY
524 THOMAS RD., WARREN, OHIO

For more facts, use Request Card at page 18 and circle No. 239

plete with trackage, stood on rollers on a platform 42 feet away from the Emerson Street and Ridge Avenue viaduct as demolition of the 40-year-old east section got under way on Friday. Workmen first used Hobart arc-air torches to cut away the concrete-filled steel beams of the understructure without weakening the span.

At 7 p.m. on Friday, the Chicago & Northwestern Railway Co. stopped traffic on the two east tracks and began routing trains over the west tracks so that workmen could tear up rails and clear away the east tracks, then complete demolition of the east half of the viaduct. Air hammers, an expanding jack, and cranes with drop weights were used to batter the abutments, which were a little stronger than had been anticipated. This work continued through Saturday.

Sunday and Monday

At 3:30 a.m. on Sunday, crews started moving the east half of the viaduct into place.

The viaduct was moved on four H-beams, which were placed at right angles to the bridge section and supported by cribbing. Rollers placed on top of the H-beams made it possible for the viaduct section to be pulled along by two trucks equipped with steamboat ratchets, winches, and cables. The wire cables used to pull the section extended the length of the H-beams and passed over a sheave on one end so that the bridge could be pulled from the east side. Two additional cables were used to control the movement of the bridge.

By 6 a.m. Sunday, the bridge had been moved about 39 feet. But the last three feet of travel were made very slowly. It was Sunday afternoon before the bridge section was over the supports, and later in the afternoon when crews started lowering the section 7½ feet into place.

Jacking system

The bridge section was lowered by a system of ten Rodgers hydraulic jacks, each of 200-ton capacity and with a 36-inch stroke. Some 2,560 feet of 1-inch high-pressure hose was used to activate the jacks, and pressure was provided by two pumps tied



together on a panel. This panel had valves and gages for each of the ten jacks, and a manifold so that oil could be bled or pumped for the system. Two 100-ton jacks were used to align the bridge horizontally just as it was above the supports. Throughout this phase of the work, Rodgers Hydraulics, Inc., Minneapolis, Minn., had four men at the site to make sure that the job was carried off successfully.

Most of Sunday afternoon and evening was spent in eliminating the "bugs" in the lowering-in process. Crews first tried to lower the entire structure at once, but the weights on the jacks were uneven and there was fear of bending the structure. Finally, it was found that by lowering the east girder about three inches, then snubbing the girder against the cribbing, the west girder could be dropped about three inches. The same procedure was followed with the opposite girder. By lowering the girders alternately, the contractor eliminated the "drifting" that took place when the entire structure was supported only by jacks.

Section "talked" into place

Perhaps the most unique part of the entire job was the way the viaduct section was "talked" into place by a two-way industrial voice communication system. Using a system



Jim Flannigan, assistant superintendent, uses a Thomson Co. two-way industrial voice communication system to direct operations at each of the ten jacking stations. He keeps a visual check on the control panel, which has valves and gates for each of the ten jacks.

As one man at jack station No. 2 uses a scale to check the lowering, another uses the communication setup to tell Jim that everything is okay. Men at each station talk privately to assistant superintendent Flannigan; Flannigan's instructions were heard at all ten stations.

supplied by C. W. Thomson Co., Middletown, Ohio, assistant superintendent Jim Flannigan was able to control the entire lowering operation.

The unit had one master station at a control panel, which gave Flannigan two-way contact with each of the ten jacking stations. There were ten remote stations—one at each jacking location. Men at each of the remote stations were able to talk to Flannigan privately, and Flannigan was able to talk to all ten stations at once. In this way, all stations were kept

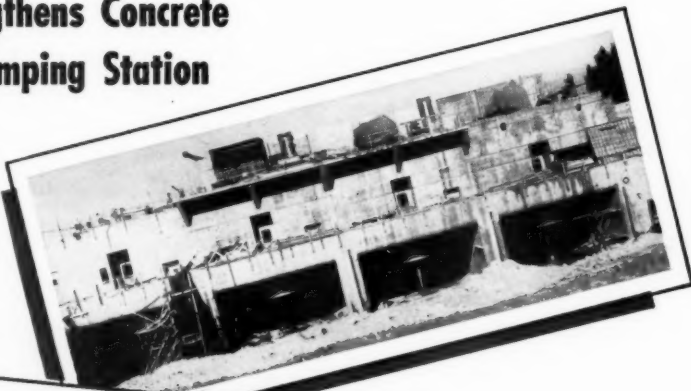
posted on the over-all progress of the job, and men at one station were able to correct a problem by listening in on directions being given to another station. The system's amplifier had a transistor that pitched voices into a range that made them heard above background noise.

By Monday afternoon, the lowering operation got under way on a steady basis. The lowering of the viaduct section 7½ feet into place was done in three stages, since the jacks had strokes of only 36 inches. As first one



Entrained Air Strengthens Concrete In Flood Control Pumping Station

Over 10,000 cubic yards of concrete—air-entrained with DAREX AEA—were poured into intricate forms for this \$1,222,000 pumping station at Lake Okeechobee, Florida. Vital part of a \$300,000,000 flood control and water conservation project by U. S. Army Corps of Engineers, this station contains a solid mass of concrete 42 feet thick, except in steel intake flume and diffuser sections. DAREX AEA helped in placing mix, increases strength of pump impeller housing.

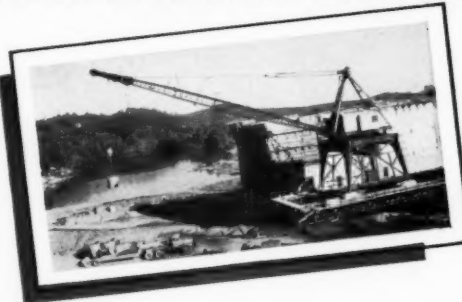


Florida Skyscraper Has Concrete Floors Made with DAREX AEA

Apt symbol of Prudential Insurance Company's "Strength of Gibraltar" is firm's 22-story office at Jacksonville, Florida. Steel framework of skyscraper, tallest in state, weighs 6,000 tons; DAREX AEA was mixed with concrete for 400,000 square feet of floor space. Contractor: Daniels Construction Co.; Architects: Kemp, Bunch & Jackson.

Air Entrainment Speeded Work on Arkansas Powerhouse

Shown under construction, powerhouse at Mt. Blakley Dam near Hot Springs, Arkansas, required 54,000 cubic yards of concrete, air-entrained with DAREX AEA. Now complete, dam controls floodwaters in Ouachita River valley, has two generators in \$5,000,000 power station. Mass concrete and thin walls alike contain DAREX AEA for fast, economical placement. Contractor was Al Johnson Construction Co. Corps of Engineers, U. S. Army, planned and supervised project.



DEWEY AND ALMY CHEMICAL COMPANY

DIVISION OF W. R. GRACE & CO.

Cambridge 40, Mass. San Leandro, Calif. Montreal 32, Canada



CONTRACTORS AND ENGINEERS

side then the other was lowered, workmen at jack stations kept a check on the lowering by means of a scale.

Tuesday and Wednesday

As the span came within a few inches of the supports, two hand-pumped jacks, blocked against the old viaduct retaining wall, were used to push the bridge into perfect alignment. Drift pins were also inserted into holes in the girders to help guide the span into place. The section came to rest at 5:38 p.m. Tuesday.

Before the bridge section had actually settled into place, the tracks on the span were connected to those on either abutment. When the section was finally settled, railroad gangs went to work to get the tracks ready

for the rush of suburban trains on Wednesday morning. This job done, the tracks were turned over to the regular train dispatcher at 1:15 a.m. Wednesday.

Personnel

Malcolm J. Boyle, head of M. J. Boyle & Co., had E. H. Bolton as chief engineer on the job; Chris Sogge as general superintendent; Ben North as job superintendent; Jim Flannigan as assistant superintendent, and Red Gillette as steel superintendent. C. H. Wood was the engineer on the project for the C. W. Thomson Co., supplier of the two-way communication system used to control the lowering in operation. Yngve Bloomquist is resident engineer on the job for the state of Illinois.

THE END

"They wanted a little place in the country."



Army tractor operates by remote control

A "robot" tractor that can be operated anywhere within range of the radio that controls it is undergoing tests at the U. S. Army Research and Development Laboratories, Fort Belvoir, Va. From a jeep or helicopter equipped with a standard military radio transmitter and a special control box, the operator can start and stop the machine, engage and disengage the gears, operate in forward or reverse, manipulate the dozer blade up and down, and activate the steering mechanism.

Normal operations can be performed from distances up to 15 miles. Army engineers believe that the installing of small television cameras on the tractor will give the remote operator additional knowledge and observation of the machine. This will also enable him to work it without the need of information relayed by a visual observer.

The prototype is the standard commercial Tournadozer manufactured by the LeTourneau-Westinghouse Co., Peoria, Ill. The only visible change to the machine is the substitution of a standard military radio receiving set for the operator's seat. Manual controls have been retained for conventional purposes.

HRB bulletin on speed, volume measurements

"Traffic Speed and Volume Measurements", Bulletin 156, is available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. The first paper, a special study financed by the Yale Bureau of Highway Traffic, is a progress report obtained during an 8-hour period on all vehicles in a traffic lane through a test section that was subject to congestion.

The second paper describes Cook County, Illinois, method of estimating traffic volumes and speeds. The last paper is a committee report comparing merits of the several methods for determining travel time and/or speed on urban highway facilities.

Priced at 90 cents, the bulletin may be purchased from the Highway Research Board.

DAREX Feature Product Extra

WRDA—First 3-way water reducing agent— Available in liquid form



WRDA available in liquid form ready for use

Delivered in rustproof 54-gallon drums, in tank trucks or in tank cars, liquid WRDA ends the complications and expense of dry powder mixes. Pre-mixed in the factory, with solids content rigidly controlled, WRDA eliminates the guesswork of job proportional mixing . . . and greatly reduces material handling and warehousing problems. Bag breakage and moisture pick-up are eliminated, labor costs are cut. WRDA can be efficiently dispensed by means of automatic equipment.

Begun in Philadelphia, a new tank truck system for metered delivery of WRDA to ready-mix plants is scheduled for use throughout the country. With this unique metered tank truck service, ready-mix plants are supplied with regular deliveries just as a householder automatically receives heating oil delivered to his home.



Permits 20% reduction in water content; increases compressive strength 30%; steps up cement hydration

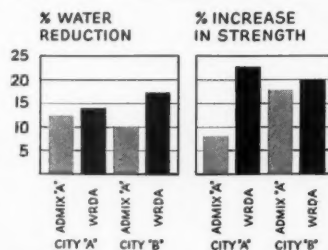
Hailed as the first triple-purpose Water Reducing Agent ever offered the construction industry, Dewey and Almy's field-approved "WRDA" has received enthusiastic endorsement from engineers and contractors throughout the United States.

This remarkable chemical admixture disperses cement particles within the mix and, through an exclusive catalytic agent, speeds up their reaction with water. Its benefits are threefold: 1—water content can be reduced as much as 20%, yet the mix remains fluid and easy to pour; 2—compressive strength is increased up to 30%; 3—the over-all quality of the concrete is greatly improved.

The catalyst in WRDA speeds up the reaction between portland cement and water for higher early strength. Coupled with this, the admixture's dispersing action exposes more cement particles to hydration. Combined result is a fine-grained concrete which hardens with a compressive strength up to 1,000 pounds per square inch higher than untreated concrete.

Proven in rigorous tests by impartial laboratories and in actual full-scale field trials at ready-mix plants,

WRDA meets or exceeds accepted industry standards. Charted below are actual job test comparisons of competitive admixtures and WRDA.



WRDA is the culmination of Dewey and Almy research, backed by more than 25 years' experience in cement mills with TDA, another D&A catalyzing-dispersing agent. WRDA is unique in that it does not contain calcium chloride—nor does it delay finishing time.

Ready-mix operators report important gains with the admixture: less tendency to "wet up" concrete, minimum strength variations, and—most important—the finished job meets the most demanding specifications.

Increases Strengths in Structural Lightweight Concrete

Used with Lelite light weight concrete, WRDA and DARALITE (Dewey and Almy's lightweight air entraining agent), achieved amazing results in a mix designed for the construction of a Massachusetts high school. Water-cement ratio was reduced 20% by the addition of these two materials. Unit weights dropped—yet strengths were actually increased an average of 32.9%.

Ideal Admixture with DAREX AEA

Added separately to the concrete mix, another D&A product, DAREX AEA, entrains millions of tiny air bubbles to minimize particle interference among the sand grains in the mix. This air-entraining action, combined with WRDA's dispersing effect on individual cement particles, permits water reductions even greater than 20%. The two admixtures team up to produce a remarkably effective catalyst-dispersing and air-entraining action.

For more facts, use Request Card at page 18 and circle No. 240

Grading, paving sequence keeps air traffic moving



The initial subbase for the runway, a blend of topsoil and blow sand, is delivered to the Jersey spreader from the dump box of the Ford F6 truck. The mixture is proportioned as it is spread by an International TD-18 pushing the Jersey spreader.



MONOTUBE PILE DATA

TYPE PILE—YN
TIP DIAMETER—8 inches
BUTT DIAMETER—16 inches
GAUGE—#7
AVERAGE LENGTH—64 feet
DESIGN LOADING—40 tons
OWNER: Baltimore & Ohio
Railroad Co., Baltimore,
Maryland
ENGINEERS: Engineering De-
partment, Baltimore & Ohio
Railroad Co.

DESIGN ECONOMY plus CONFIDENCE with Monotube piles . . . a sizable saving over conventional pier design, yet complete conformity with railroad specifications. That's the record of these Monotube piles used by the Baltimore & Ohio Railroad at Westport, Maryland.

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. Write The Union Metal Manufacturing Co., Canton 5, Ohio, for complete information.

UNION METAL

Monotube Foundation Piles

For more facts, use Request Card at page 18 and circle No. 241

Modernizing airfield facilities at Vance Air Force Base at Enid, Okla., was done at the same time planes were using the field. To bring the World War II base up to date, a new runway, taxiways, and aprons were constructed, and existing facilities were extended and strengthened. In the program both concrete and flexible pavements were combined with several types of base construction.

To keep the field in operation, it was necessary to plan and execute several phases of the program very carefully. Grading, base, and paving operations had to be done in sequence in one area, and then repeated when another work area was available. Planes had to use the new runway before any part of the old could be obstructed; and at all times, there had to be access between the runway in use and the operational center.

McCarthy Improvement Co., Davenport, Iowa, general contractor, did both concrete and bituminous paving, and laid the subbase and base. Grading operations were sublet to W. D. & Alyce Fulton, Oklahoma City.

During the course of work at Vance, experience on other fields led to changes in design criteria, particularly in base materials. Work was held up on occasions while awaiting changes which were made to incorporate the current criteria.

Concrete, bituminous runway

The new runway is a paved strip 150 feet wide and 6,900 feet long with a 1,000-foot graded overrun area at one end. At each end of the runway, a 1,000-foot section is paved with concrete while the center section is of flexible pavement. Construction of this new runway was the first phase of the work.

Fulton used a spread of five Euclid scrapers pushed by an International TD-24 tractor to load and haul the 325,000 cubic yards of earth in the grading. Fills, built up in shallow lifts, were watered by a big Euclid water wagon and compacted with Gebhard sheepfoot rollers. The top 6 inches of the subgrade throughout this job was compacted to 95 per cent density before the subbase or base materials were placed.

The flexible pavement section of the runway consists of three courses of subbase and base, plus two courses of asphaltic-concrete surfacing. The initial subbase course was a 5-inch compacted layer made up of a blend of topsoil and blow sand. The topsoil

CONTRACTORS AND ENGINEERS

Concrete and flexible pavements, several types of base construction used for runway, taxiways, aprons, and improvement of old facilities

was spread on the grade by Caterpillar No. 12 motor graders, and sand was applied by a Jersey spreader pushed by an International TD-18.

Materials were first disked with a Rome disk, and then mixed dry by a Seaman-Andwall Pulvi-Mixer. Moisture was then added either by water trucks or through the Pulvi-Mixer to bring the material up to optimum moisture content for compaction. The Gebhard sheepsfoot rollers, pulled by Caterpillar D8 or International TD-18 tractors, started the compaction operation, and a Ferguson 50-ton rubber-tire roller pulled by a Caterpillar DW10 tractor made the final passes.

The second subbase course was modified during the period of the job. Originally, a material similar to filter gravel was used, but this was changed to an all-sand material, and then to a soil-cement mixture consisting of two types of local sand. This material contained 4 per cent cement and was placed in a 7-inch compacted course.

Bulk cement, hauled to the runway in covered dump trucks, was placed in the proper proportion by a Hercules spreader. The materials were then mixed dry with the Seaman Pulvi-Mixer. Water was added through the Pulvi-Mixer, which was served by a fleet of 1,500-gallon tank trucks. The Pulvi-Mixer then made a third pass to complete the mixing.

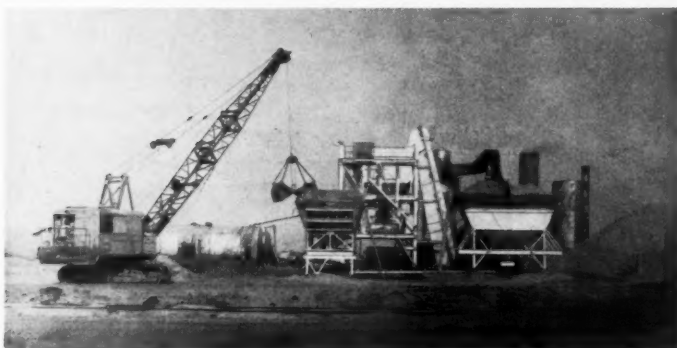
The material was compacted with a sheepsfoot roller and with a Welco 9-wheel rubber-tire roller. Final compaction was applied with the Ferguson 50-ton roller pulled by a Caterpillar DW10 tractor.

A 6-inch course of dense, crushed-stone base made up the third and final base course. This material consisted of a mixture of crushed rock graded from 2-inch to No. 4, together with proper proportions of limestone screenings and local pit sand. All three were placed by a Jersey spreader, watered, mixed by a Seaman Pulvi-Mixer, and compacted to 100 per cent density with tandems and 50-ton rollers. After being finished to exact grade and line, the surface was sealed by steel-wheel rollers.

An Etnyre distributor mounted on a Ford truck primed the finished base with 0.2 to 0.25 gallon per square yard of MC-1 cutback asphalt. The 1½-inch binder course of asphaltic concrete was then laid by a Barber-Greene finisher and rolled with Huber-Warco 3-wheel and Galion tandem rollers. The binder was carefully

(Continued on next page)

A Lorain Model 82 crane with Owen 2-yard clamshell feeds the bins of the Cedarapids plant. The hot-mix plant's water stack contains 72 spray nozzles that wash down exhaust gases as they travel upward.



Increase Trailer Road Safety with Wagner Air Brake Trailer Kits

...everything you need for easy field installation...

COMPLETE IN ONE PACKAGE!



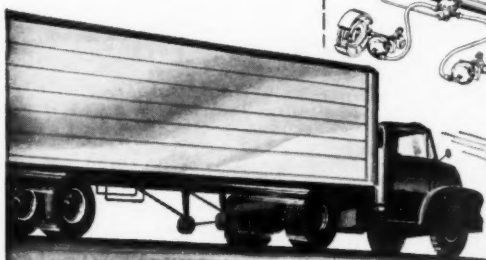
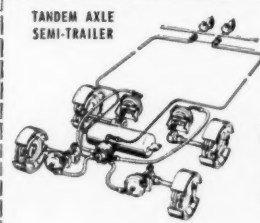
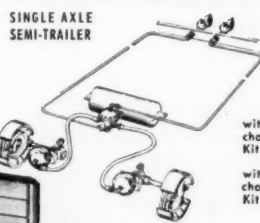
You can make every trailer you operate a safer vehicle by standardizing on Wagner Air Brakes. Available in complete factory-engineered kits, Wagner Air Brakes are easy to install, reduce air brake maintenance cost and increase road safety.

Each Wagner Air Brake Kit contains all parts and connections needed. Time and labor required for installation are kept at a minimum. All parts fit easily into position with little or no drilling or tapping.

SELECT THE COMPLETE KIT FOR YOUR TRAILER APPLICATIONS

See your Local Wagner Air Brake Representative

Complete Unit Package Wagner Air Brake Trailer Kits are available for single or tandem axle trailers with either type 24 or type 30 chambers. Kits for tandem axle trailers include additional chambers and parts required for these installations.



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LOCKHEED HYDRAULIC BRAKE PARTS and FLUID • NoRoL • CoMoX BRAKE LINING • AIR BRAKES • AIR HORNS • TACHOGRAPHS • ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES

For more facts, use Request Card at page 18 and circle No. 242



A Chevrolet 6400 truck dumps asphaltic concrete into a Barber-Greene finisher which lays the 1½-inch binder course. In the background, a Caterpillar No. 12 motor grader shapes up a section of the base.

broomed with a Littleford power broom and tacked with a fog coat of cutback asphalt before the 1½-inch course of asphaltic-concrete surfacing was applied.

After the finish course had been compacted with the steel-wheel rollers, it was given a final hot rolling with a Ferguson 25-ton self-propelled roller. For this use, the roller was fitted with a system for applying water to the tires. A barrel of water was mounted on top of the roller and piped to burlap pads dragging on the wheels to distribute the water evenly and continuously over the width of each tire.

A half day or more after the surface course had been laid, it was given a diagonal compaction by a 3-axle Galion Roll-O-Matic roller.

The asphaltic-concrete mixes were produced in a Cedarapids hot-mix plant set up at a rail siding at one edge of the base. Four types of aggregate for each of the two mixes were received by rail and truck. At the plant, two cranes—one a Lorain Model 82 with an Owen 2-yard clamshell bucket, and the other an Osgood fitted with a Blaw-Knox 1-yard bucket—fed the aggregates into two 20-ton bins, each of which was divided into two compartments.

Reciprocating feeders fed the aggregates to a cold elevator, which carried them to an 88-inch×24-foot dryer. Dry materials traveled up the hot elevator to a 48×66-inch 4-deck gradation unit, then by gravity to the 4,000-pound pugmill. Here, the asphalt cement was added as the materials were mixed. The batch, produced at rates up to 160 tons per hour, was dumped to seven to ten trucks that hauled up to 2½ miles to the paver on the field.

An unusual feature of the Cedarapids plant was the dust collection system that kept the loss of dust through the stack almost at zero. First, a big dust collector picked out most of the dust and returned it to the hot elevator. Before being discharged, exhaust air was run through a water stack. This stack, a 72-inch corrugated iron pipe 36 feet high, contained 72 spray nozzles piped to a high-pressure Fairbanks-Morse pump. The exhaust gases were washed by the spray as they traveled up the stack. The water flowed down through three settling tanks arranged in se-

ries and was then re-pumped back through the spray nozzles.

Concrete pavement

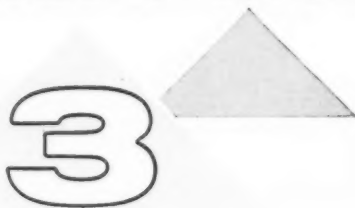
In the concrete paving areas, a 4-inch compacted course of filter gravel was applied over the compacted subgrade. The filter material, consisting of a mixture of local sand and rock screenings, was trucked in and spread in proper proportion with a Jersey spreader. The Seaman-And-wall Pulvi-Mixer blended the materials in place and applied the water required for compaction. This course, compacted by a Ferguson 50-ton rub-

ber-tire roller, was left a little high so that there would always be cut for the forms and subgrader.

A train of new paving equipment was assembled at the start of the concrete paving operations. Headed by a Rex dual-drum paver, it included a Jaeger spreader, Jaeger finisher, Koehring longitudinal float, and a Flex-Plane curing spray machine.

Cement and aggregates for the concrete were batched from a Blaw-Knox plant. A two-compartment 40-ton sand and gravel bin was charged by a Lorain Model 82 crane with an Owen 2-yard clamshell bucket. Ce-

THERE'S A "Euc" SCRAPER MATCHING ANY



Euclid offers you the most complete line of self-powered scrapers in the industry—and they're all job-proved to give you more work-ability and low cost yardage. No matter what your job may be—from small clean-up or grading work to big yardage projects—there's a size and type that meets your requirements.

SIX-WHEEL SCRAPERS

These models provide maximum stability for long, high speed hauls. They have capacities of 12, 18 and 24 yds. struck . . . are powered by engines of 200 to 335 h.p. and haul heaped loads of 16, 25 and 32 yds. at speeds up to 30 mph.



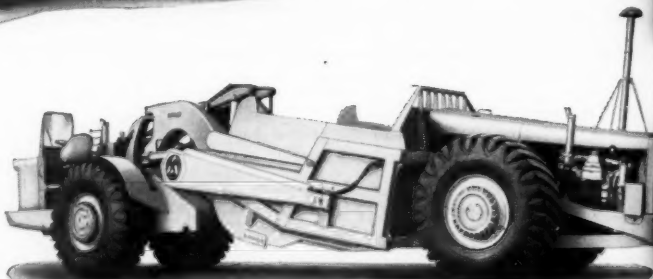
OVER-HUNG ENGINE MODELS

Payload capacities of these "Eucs" are 7, 12 and 18 yds. struck . . . 9, 16 and 25 yds. heaped. Over-hung engine design of tractors provides excellent maneuverability and ease of handling in difficult work . . . engines are 143, 300 and 335 h.p.



TWIN-POWER SCRAPER

With a total of 518 h.p., this Euclid has a struck capacity of 24 yds. . . 32 yds. heaped. Two engines, each having a separate Torqmatic Drive, enable this "Euc" to work independent of other equipment and move more yards at lowest cost on any scraper job.



Your Euclid dealer can supply performance and cost data on Euclid Scrapers best suited to your operations. Have him show you why Euclids are your best investment.

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, OH



Euclid Equipment

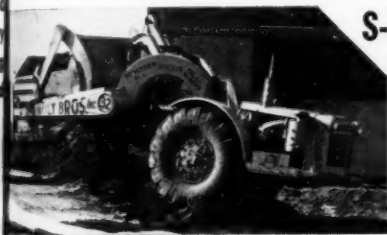
FOR MOVING EARTH, ROCK, COAL AND ORE





As the Barber-Greene finisher and Chevrolet truck work in one lane, the finished course is given a final hot compaction by a Ferguson roller. Water from the barrel atop the roller is piped to burlap pads dragging on the wheels to distribute the water evenly and continuously over each tire.

ANY SIZE OR KIND OF JOB



S-7 Model S-7 is equipped with 143 h.p. engine... 18.00 x 25 tires... 4-speed Torqmatic Drive... full hydraulic 90° steering. Capacity is 7 cu. yds. struck and 9 yds. heaped at 1:1 slope. Optional tires are 21.00 x 25.



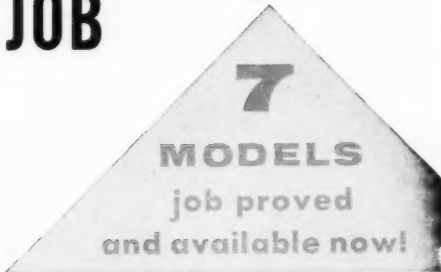
S-18 This Model S-18 has a 300 h.p. engine with 4-speed Torqmatic Drive. Struck capacity is 18 cu. yds. ... 25 yds. at 1:1 heap. Tires are 27.00 x 33 with 33.50 x 33 optional... full hydraulic 90° steering.



SS-18 The Model SS-18 has a 300 h.p. engine and 3-speed Torqmatic Drive. Capacity is 18 cu. yds. struck and 25 yds. heaped. Front tires are 14.00 x 25... 24.00 x 25 tires on drive and scraper wheels with 29.5 x 25 optional... hydraulic booster steering.



TS-24 The Model TS-24 has a 300 h.p. engine for the tractor and a 218 h.p. engine for the scraper... each with a separate Torqmatic Drive. Heaped capacity at 1:1 is 32 cu. yds. ... 24 yds. struck. Full 90° hydraulic steering... 27.00 x 33 tires with 33.50 x 33 optional.



S-12 Powered by a 218 h.p. engine, the Euclid S-12 Scraper has a 5-speed transmission... 24.00 x 25 tires... full hydraulic 90° steering. Struck capacity is 12 cu. yds. ... at 1:1 heap, 16 yds.



FDT This 4-wheel tractor model has a struck capacity of 12 cu. yds. ... 16 yds. heaped... and is available with 200 or 218 h.p. engine and 5-speed transmission. Tire sizes are 12.00x25 front and 21.00x25 on drive and scraper wheels with 24.00x25 optional.



SS-24 A 300 or 335 h.p. engine with Allison 4-speed transmission and converter lock-up powers the Model SS-24. Struck capacity is 24 cu. yds. ... 32 yds. heaped. Front tires are 14.00 x 25... drive and scraper tires are 27.00 x 33 with 33.50 x 33 optional for maximum traction and flotation.

ment was handled in a plant with two storage silos, each having 400-barrel capacities. Both units of the batch plant were equipped with twin weighing-batching equipment.

The lane adjacent to the center line was first made ready with Blaw-Knox forms. Then as the paving progressed, only one side of each lane was formed. The paving equipment operated with the wheels on one side on the forms, and the wheels of the other side on the concrete slab.

Contraction joints were sawed to a depth of 1½ inches by a ConCut concrete saw with abrasive blades. The sawing was usually started within 6 to 8 hours after the concrete had been placed. A Clipper joint sealer machine was used to fill the joints with Serviced JRF and rubber-asphalt joint compounds.

In addition to the new runway, some taxiways and aprons were built, and the old runways and taxiways improved. The old runway was extended by adding 150-foot-wide concrete sections that were 1,600 feet long at one end and 1,300 feet long at the other. The center section of the old runway was then strengthened by an overlay placed over the old concrete pavement.

A minimum thickness of 6 inches of dense graded aggregate base was placed over the old concrete slab. This was the same type of material used for the top or third base course of the flexible pavement of the new runway, and it was placed in the same manner. To correct grades and make necessary adjustments, the contractor increased the base course to as much as 10 inches in some places. The area was primed with cutback asphalt and surfaced with 1½-inch courses of asphaltic-concrete binder. The surfacing was the same as that on the new runway.

To match grade at runway and taxiway intersections, it was necessary to remove 52,000 square yards of the old concrete pavement. The concrete was broken up by a Lorain Moto-Crane using a breaker ball. A Michigan Model 175A tractor shovel loaded the broken slabs into trucks to be hauled to waste areas.

Personnel

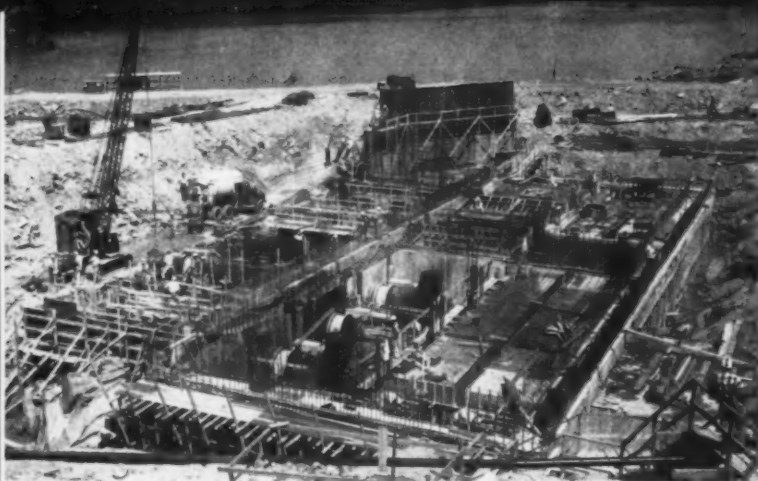
All phases of the airfield construction program were under the supervision of J. C. Peters, project manager for McCarthy Improvement Co. Others on the staff were Ed Johnston, superintendent; James Palmer, project engineer; Ed Van Getson, asphalt superintendent; R. A. Thompson, plant superintendent; and Dave Burns and Paul Navor, base foremen.

With the work scattered over the field, these men made very good use of a General Electric mobile radio system which included units in the cars of key personnel as well as stations at the field office and asphalt and batch plants.

The project engineer for the Tulsa District of the Corps of Engineers was W. J. Evans. Paving engineers were R. W. Anstead and Jack Westland. Acting district engineer of the Tulsa District is Col. W. J. Himes. THE END

For more facts, circle No. 243

► "Euc" Scrapers have hydraulic lever action, 4 section adjustable and reversible cutting edges, unequalled accessibility and other cost-cutting advantages. Check the complete Euclid line before you decide on any scraper equipment.



Dam and pumping station all for

Three-shift tunnel crew averages a linear foot per hour; station scheduled to be operative by the end of this year

Concrete for the pumping station on the Potomac is delivered by a 6-yard truck mixer and swung to the Symons forms by a crane with 60-foot boom and 2-yard bucket.

Driving a 13½-foot-diameter tunnel through tough granite, building a pumping station capable of pumping 500 million gallons of raw water a day, and pushing a water supply overflow-type dam across the historic Potomac River were all part of the \$4,500,000 Little Falls Dam and Pumping Station project now nearing completion.

When the new pumping station is finished late this year, it will replace the 9-mile conduit at Great Falls, a facility that is becoming too costly to maintain; it will assure the District of Columbia of an adequate water supply until the year 2000. Work on the project is being done by James McHugh Construction Co., Chicago, Ill., for the U. S. Army Corps of Engineers, which is responsible for the water supply facilities serving the Washington, D. C., area.

Cofferdam built, extended

In the first stage of construction, a rock and earth cofferdam was extended out into the Potomac, completely encircling the area of the proposed pumphouse to permit excavation operations to start. The 11,000 cubic yards of rock that had to be removed for the pumping station was drilled with two Gardner-Denver Air-Tracs equipped with Brunner & Lay 4-inch drill bits. The same two drills were also used for rock excavation on the dam. A Bucyrus-Erie 51-B with 90 feet of boom and a clamshell bucket, excavated blasted rock for the dam as well as for the pumping station.

Once the foundation excavation for the 147×82-foot pumping station was complete, the contractor extended the rock and earth cofferdam into the river to start operations on the dam.

Rock and earth was first pushed out with a Caterpillar D8 tractor-dozzer to encircle an area long enough to build a few hundred feet of the dam. Then a single row of interlocking sheeting was driven through the rock and earth fill of the cofferdam.

A McKiernan-Terry No. 7 hammer mounted on a 60-foot boom crane drove the sheeting to rock only through the end seal of the cofferdam. This was done in an attempt to reduce seepage in the excavation and to reinforce the exposed end of the cofferdam against erosion by the fast-



WHILE STEELWORKERS place a sling on the next beam to go up, this American 100 Series lifts open web joists into position. The job is a new terminal building at the

Pinellas County (Florida) Airport. When completed, the terminal will give passengers service to St. Petersburg, and a 25-mile auto trip from Tampa will be eliminated!

NEW 12½-TON AMERICAN CRANE SETS STEEL SMOOTHLY, SAFELY

A modern terminal building and control tower are part of the new Pinellas County Airport that will serve St. Petersburg, Florida. Johns Contracting Company, Tampa, is using their American 100 Series Truck Crane for steel setting on this job. Working with up to 85 feet of boom, the 12½-ton capacity American frequently handled loads weighing up to 5 tons. Lifts ranged up to 71 feet high! More than 120 tons of structural steel are used in the terminal building.

NEW MODELS of the 100 Series Americans now in production offer steel erectors precise accuracy. An optional two-speed transmission permits steel beams to be "inched" into position without excessive jerking

or dangerous shock load stops. Perfectly smooth boom control—even with longest boom at maximum radius—results from American's overrunning sprag clutch. With this feature you have 100% boom control. There's not an inch of drop when you start the boom up or down. Steel is handled smoothly, safely, speedily!

See Americans working right on the job—talk to owners and operators! Ask your nearest distributor to show you American crawler and truck cranes in action. With any front-backhoe, shovel, dragline, clamshell or crane boom—in any capacity from ½-yard, 12½ tons on up, you'll see, in person, why American is the fastest growing crane line!

CONTRACTORS AND ENGINEERS

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AUGU

all for tunnel through granite

flowing Potomac River.

This method of cofferdam construction was used to reach an island in mid-stream. This point reached, the cofferdam was removed to allow water to flow over the crest of the dam while the remaining length of the 1,520-foot-long dam is completed between the island and the Virginia shore.

The section of the dam between the island and the Virginia shore will be 6 inches higher than the first section built, so that water flowing downstream will be diverted toward the pumping station and into the existing Chesapeake & Ohio feeder canal. When the project is completed at the end of this year, water will be pumped

Two Gardner-Denver Air Tracs, powered off a bank of Gardner-Denver 600-cfm air compressors, get blast holes ready during foundation excavation for the dam.



LOADED WAY DOWN, the American 100 Series Truck crane reaches out for another beam. Americans meet steel erectors' demands for precise, positive boom control and plenty of power to keep jobs on schedule. Combining low initial cost with low operating cost, the 100 Series is an extremely versatile machine that operates with any front. As a truck crane its high speed mobility carries it from job to job with minimum travel time. On crawlers, the 100 rolls over tough terrain—its wide undercarriage offers unusual stability, yet has a full 13½-inch clearance.



REACHING UP to a bridge deck to place concrete is an American 300 Series Crawler! On this turnpike job the contractor uses his American to drive piles, handle forms and place concrete. American crawler and truck cranes accommodate all fronts—offer a complete line that meets every contractor's needs. American distributors, who have detailed information on the entire line, will study your requirements, help you select the exact models best suited to your operation. Call your distributor or write direct.

NOW CELEBRATING its 75th year of service to the construction industry, American Hoist actively continues its program of product development and refinement. Most recent outgrowth of this plan are the American 100 and 300 Series machines. These crawler and truck cranes offer capacities of ½-yard, 12½ and 15 tons; ¾-yard, 22½ tons. They bring work proved American performance and efficiency to contractors with jobs requiring smaller capacities, but maximum crane efficiency and ruggedness. Remember, there's an American Crane for your job—no matter how small or large!



SETTING THE PACE on big projects is American's big producer—the 700 Series! Working capacities are 2-yards dragline, 1½-yards rock shovel and backhoe. For steel erectors, 50 tons capacity on crawlers or truck crane. Finger-tip air controls give operators immediate response to every command. As a result, every move of man and machine counts! For sustained high production on the bigger jobs, it will pay you to investigate the American 700 Series!



AMERICAN HOIST and Derrick Company

St. Paul 7, Minnesota

For more facts, use Request Card at page 18 and circle No. 244

through the 4,400-foot tunnel into the reservoir at 500 mgd. At present, water is being diverted into the canal by a rock-filled dam located about 100 feet downstream from the new overflow structure.

Dam and pipeline

The new reinforced-concrete dam will be 26½ feet wide at its base and will have a crest elevation of about plus 39 feet, with the apron toe elevation at plus 23 feet. When it is completed, water will flow over the crest at all times, but enough of a pool will be formed for the operation of the pumping station.

A 36-inch inside prestressed concrete pipeline will be installed along the base of the upstream face of the dam so that treated water from the city of Washington can be pumped across the Potomac to the town of Falls Church, Va., at a future date. This pipeline was formed as the dam was constructed.

During excavation of the dam foundations, two cutoff trenches were dug along the base of the cofferdam walls to collect and divert seepage from the excavation area. A 12-inch electric pump and two 6-inch Jaeger gasoline-driven pumps kept the sump along the south edge of the excavation dewatered, while a Gorman-Rupp 10-inch diesel pump and two 6-inch pumps—a Jaeger gasoline and a Marlow electric—helped dewater the north sump.

The pumps, depending on the amount of seepage, work individually or simultaneously. Electrical power used on the job is purchased locally. Air requirements for driving the rock tunnel and for outside excavation was supplied by a bank of two Gardner-Denver 600-cfm piston-type air compressors equipped with thrift meters. This allowed a hookup with a third Gardner-Denver 600-cfm rotary-type compressor.

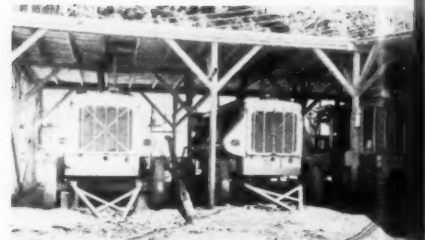
Driving rock tunnel

Crews made about one foot per hour as they drove the 4,400-foot-long tunnel through granite. Drilling was handled by four Gardner-Denver drills mounted on a jumbo capable of riding the muck track rails. Rail tracks were laid to extend into the tunnel as drilling and blasting progressed. A 13½-foot-diameter face was drilled



Working behind an earth and rock cofferdam on dam excavation, a Bucyrus-Erie 51-B loads a dump truck with blasted rock. The remainder of the 1,520-foot-long dam is being built between the island, background, and the Virginia shore.

Air for both tunnel driving and outside excavation is supplied by the two Gardner-Denver 600-cfm piston-type compressors, left. They are equipped with thrift meters, allowing a hookup to be made with the rotary-type Gardner-Denver, right.



(Continued from preceding page)

with an average of 38 holes going 8 feet deep through good hard rock. This distance was cut back to 5 feet when poor rock sections were encountered.

The 2¼-inch-diameter holes were sunk in six vertical rows 32 inches apart. Number 1 through 9 delay blasting caps, and an instantaneous blasting cap only in the center row, were used to progress the detonation from the center to the outer edge of the tunnel. Du Pont 40 per cent gelatin dynamite sticks were used as the blasting charge in the holes.

Blasted rock was removed from the tunnel by a train of muck cars that were filled by an Elmco 40 loader. Both the loader and muck cars rode rails, and a small diesel locomotive hauled the muck wagons from the tunnel to a spoil area upstream from the pumping station.

The 23,500 cubic yards of granite that had to be removed was rough on the carbide-insert drill bits used. Each bit had to be re-sharpened after sinking an 8-foot hole, and after a maximum of six resharpenings, each bit was replaced.

As the tunnel reached a point 200 feet below ground surface, it was supported by horseshoe-shaped steel rings through the bad sections. Rock bolts, 6 feet 6 inches long, with 8×8-inch head plates at the rock surfaces, were drilled into the unsupported sections. These were used wherever weak seams were found.

Electric lines strung along the roof of the tunnel were moved forward as the tunnel was driven. Blower duct lines were also extended to suck drilling and blasting dust from the tunnel. An air line supplying air from the compressor bank to the Gardner-Denver drill jumbo was also extended as the driving progressed. The tunnel crews, each consisting of 15 men, worked three 8-hour shifts per day, driving an average of one linear foot of tunnel per hour.

The tunnel, with a concrete lining that gives it a 10-foot inside diameter, is connected to the pumping station through a steel-lined concrete-encased diaphragm. Water leaving the station will pass first through a steel-line diaphragm, a cast-iron venturi meter, a 10-foot-diameter Lock-Joint concrete pipe placed in a cut-and-cover section, and a reinforced-concrete conduit to the connection with the concrete lined tunnel.

A non-telescopic, collapsible, full round steel form, manufactured especially for this project by Blaw-Knox, was used to form the inside 10-foot diameter of the aqueduct. In one 60-foot-long section, the Blaw-Knox steel form was supported by and rode on the muck tracks in front and on



THIS DRILLMASTER PERFORMANCE SOLD FIVE MORE UNITS!

The performance of the Ingersoll-Rand Drillmaster shown above, in the quarry of a large midwest lime producer, has resulted in the sale of five additional units — to other operators who came, saw and were convinced.

This completely self-contained and self-propelled blast hole drilling rig has been in operation for over a year. Using an I-R "down-the-hole" drill and 6½" Ingersoll-Rand Carset Jackbits, sinking 60-ft holes with 18-ft spacing and 24-ft burden,

this Drillmaster has consistently maintained a drilling speed of 25 feet of hole per hour, including moving time. Bit life in this dense, hard to drill limestone has exceeded 6,500 ft.

If you're interested in cost-cutting performance, see the Drillmaster in action. We will be glad to arrange for a visit to an operating unit — and to help you evaluate its performance in terms of your own drilling conditions. Ask your Ingersoll-Rand representative or write for further details today.

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the previously poured section in the rear. The form section had rail wheels in front while the pneumatic tires in the rear prevented the concrete lining from being marred.

Pumpcrete method

The Pumpcrete method was used to place the tunnel lining in three stages. Concrete for the first 1,200 feet of the tunnel was supplied by a Pumpcrete rig set up at the end of the tunnel, where a 110-foot-deep shaft was excavated to connect with the Dalecarlia Reservoir. When the first 1,200 feet had been lined, the Pumpcrete rig was set up at the mid-point of the tunnel to place the center 1,200 feet of the lining. During work on this section, pumping was done through a 10-inch-diameter hole drilled from the ground surface. The third setup was located at the pumping station portal.

The 45,000 cubic yards of concrete required for the project was supplied by a Butler batch plant equipped with a Worthington 2-yard mixer having a 1½-minute mixing cycle.

Cement was delivered by rail to a siding a mile from the site, where trucks were filled by a Butler cement unloader. Trucks arriving at the batch plant dumped the cement into a hopper feeding a screw conveyor. This, in turn, fed the 70-foot-high enclosed bucket elevator that discharged into the Butler 1,200-barrel cement silo.

Aggregates, delivered to the plant by trucks, were stockpiled into four sizes: sand, ¾-inch stone, and 3-inch-maximum stone. The stockpiles are located around a hopper that feeds a Pioneer electrically-driven, 22-inch-wide and 175-foot-long conveyor. A Caterpillar D4 tractor, equipped with a ¾-yard front-end loader was used to transfer aggregates from the stockpiles to the hopper. During peak batching operations, the contractor had the aggregate trucks back up and dump directly to the ground-level hopper. The belt, operating through a swivel chute atop the Butler aggregate bin, discharged the different aggregates into the separate compartments. Cement was stored in a fifth compartment.

In forming the pumping station pours, McHugh used Symons forms and a 2-yard concrete bucket on a crane with a 60-foot boom. Concrete batches were hauled to the pours in a 6-yard ready-mix truck. A typical 2-yard batch for the pumping station consisted of:

Cement	1,034 pounds
Sand	2,330 pounds
¾-inch stone	1,954 pounds
1½-inch stone	1,804 pounds
Water	540 pounds
Aerolith (AEA)	270 cubic centimeters

Personnel

Roy Stickney is the general superintendent for McHugh Construction Co. Calvin R. Burke is the project engineer and Samuel E. Neely, the resident engineer for the U. S. Army Engineer District, Washington, which has Col. George B. Sumner as district engineer.

THE END



This Eimco 40 loader, riding the muck wagon tracks, is being positioned to excavate blasted rock from the 13½-foot-diameter tunnel. Rock bolts are used where weak seams are found in unsupported sections.



Aggregate is fed by a Caterpillar D4 with ¾-yard front-end loader to the hopper feeding the Pioneer conveyor belt running to the Butler bin. Cement storage at the plant is provided by the 1,200-barrel-capacity Butler silo.



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Oil Filter Survey that lists correct WIX replacement Cartridges for every piece of your equipment, plus Inventory Control.

Fleet Manual for a continuing record on every engine — maintenance, repair, performance — at a glance!

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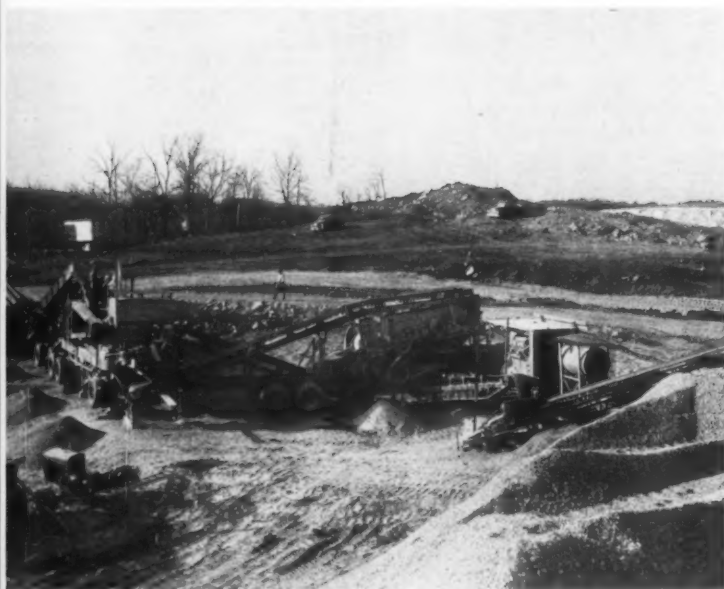
In Canada: Wix Accessories Corp. Ltd., Toronto

For more facts, use Request Card at page 18 and circle No. 246



1 A Euclid, right, end-dumps to the 30-inch X 25-foot apron feeder of the Pioneer Model 151PR primary crusher. A 30-inch X 22-foot

conveyor takes the material to the Pioneer 143S secondary unit. Minus ¾-inch stone is carried by a 24-inch X 70-foot stacking conveyor to the stockpile.



2 The 24 X 36 primary jaw crusher is powered by a Cat D13000 engine. The secondary crusher includes a 40 X 22 triple-roll crusher and a 4 X 10-foot triple-deck vibrating screen. The closed-circuit-type unit is powered by a Cat D364 engine. In the background is the rock cut supplying raw material to the plant.



3 Just a few hundred feet from the plant, two Joy wagon drills work the cut. They sink 2¼-inch holes to an average depth of 12 feet in the limestone rock. Compressed air is supplied by the Chicago Pneumatic Power Vane rotary 600 compressor.

Efficient crushing job done by compact setup

Plant is located near 40-foot highway cut

that yields stone; subcontractor produces

45,000 tons of base course material

by BILL ALLEN, field editor

In a compact operation, W. J. Menefee Construction Co., Sedalia, Mo., used rock taken from a nearby highway cut to produce the 45,000 tons of base course material for a paving job on U. S. 66 near Lebanon, Mo., in about 36 days.

The Menefee firm, working under a subcontract from Koss Construction Co., Des Moines, Iowa, had William Menefee as superintendent of the job. The plant manager was C. R. "Curley" Folk.



4 Working ahead of the drilling and blasting operation is a Caterpillar D7 tractor-dozing, which clears away the overburden. Drilling operations are being done in the background.

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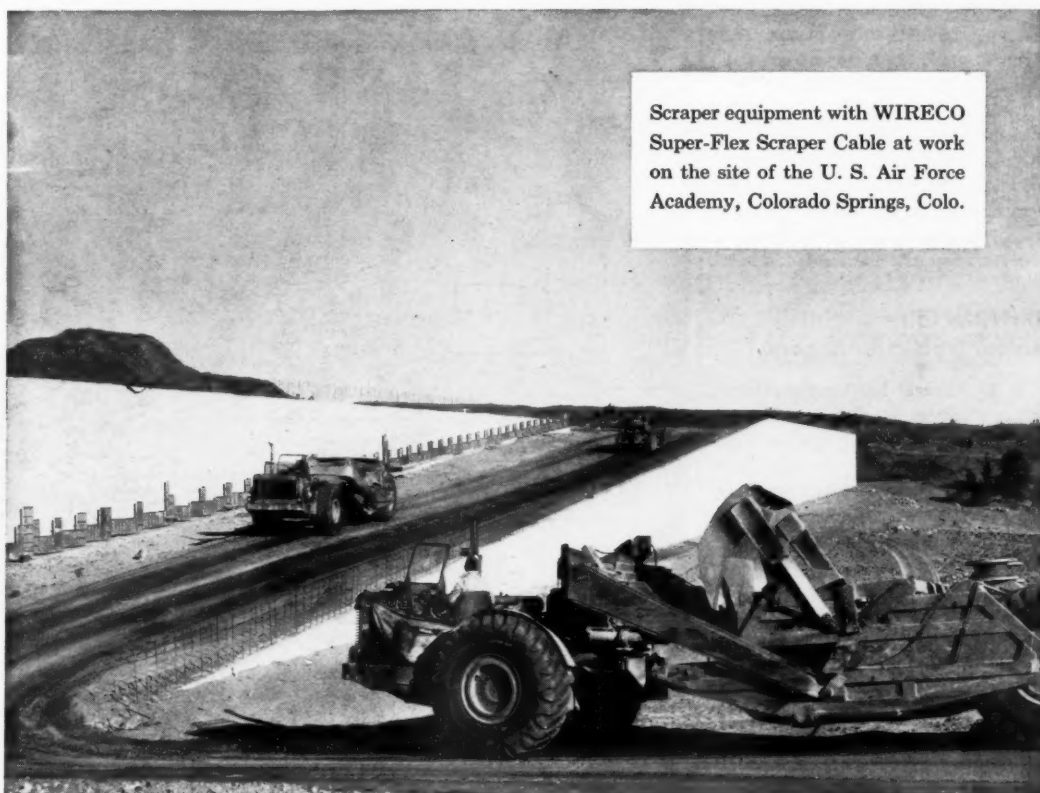
6 The Lo
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5 At the base of the cut, a new Lorain L56 shovel with 1¼-yard dipper loads shattered rock into one of two Euclid 12-ton end-dumps hauling to the plant.



6 The Lorain operator makes good use of the newly designed "joy stick" controls. Using only two hand levers, he makes the shovel travel, swing, hoist, crowd, and retract.



Scraper equipment with WIRECO Super-Flex Scraper Cable at work on the site of the U. S. Air Force Academy, Colorado Springs, Colo.

WIRECO Super-Flex Scraper Cable Is the Answer to Longer, Better Service Life!

On the Job Comparison Proved
WIRECO More than 100% Better!

Excavating and grading for the new Air Force Academy was a big undertaking and demanded the finest equipment available. To get maximum performance from the equipment used, several different scraper cables were used to find the one with the longest and best service life. WIRECO Super-Flex Scraper Cable was the answer to this rope problem. This new product proved itself to be more than 100% better than others used. Whatever the problem in the construction field, WIRECO has the answer. Consult your WIRECO Distributor for complete details of this amazing test and all wire rope needs.

WIRECO Super-Flex is better because of its FLEXIBILITY and ABRASION RESISTANCE

The special construction of Wireco Super-Flex Scraper Cable combines these two characteristics in a rope that thrives on rough going... insures more yardage and greater profit!



**SAFETY
ENGINEERED**

to the demands of your job! Comes wound on scraper reels ready for fast, easy mounting, yet costs no more!

See your WIRECO Distributor TODAY!

**WIRE ROPE
CORPORATION
OF AMERICA**



St. Joseph, Mo. Phone 3-0287

For more facts, use Request Card at page 18 and circle No. 247

manufacturer memos

Luther H. Bosnian, new senior vice president of the Chain Belt Co.



Chain Belt names four to fill vacancies

Three executives have retired from the Chain Belt Co., Milwaukee, Wis.—Alfred R. Abelt, vice president of sales; Edmund P. Meyer, works manager of the Milwaukee plants; and Louis J. Michiel, sales manager of foundries. To fill the vacancies Luther H. Bosnian has been named senior vice president; William J. Sparling, vice president of manufacturing and facilities; Edward M. Rhodes, general manager of the industrial equipment section; and Harold Patzer, sales manager of foundries.

Duff-Norton appoints sales, traffic managers

T. W. Krueger has been appointed sales manager of the Duff-Norton Co., Pittsburgh, Pa. Krueger will be in charge of all sales for the Jack and Coffing Hoist Divisions, and will be responsible for foreign and domestic sales to railroads, distributors, and the government.

The firm also appointed Joseph C. Gruber traffic manager of the Jack Division.

Hough elects officers

Three officers have been elected within the financial section of the Frank G. Hough Co., Libertyville, Ill. Robert L. Smith, formerly assistant secretary and treasurer, has been made secretary and treasurer.

Frank M. Docauer, former staff assistant, has been elected assistant secretary; and Fenton O. Richards is the new controller. Richards had previously been assistant manager of the firm's cost department.

Hyster appoints three

Hyster Co., Portland, Oreg., has appointed Ray M. Ronald domestic sales manager of the firm's tractor equipment division. In his new position, Ronald will work with all phases of sales in the United States, Alaska, Hawaii, and Canada. Ronald was formerly western division sales manager.

Robert F. Moody, previously eastern division sales manager, of industrial trucks, has been promoted domestic sales manager in charge of all industrial truck sales in the United States, Alaska, Hawaii, and Canada.

The former assistant sales promotion manager, Raymond L. Howerton, has become sales promotion manager.

Le Roi names engineering and plant managers

Donald M. McDowell has been named manager of engineering for the Le Roi Division, Westinghouse Air Brake Co., Milwaukee, Wis. McDowell, who joined the firm last year, has been active in the company's development of new products for the construction and mining markets. For the past several months he has been acting manager of the division's engineering department.

The firm also named Albert Feucht manager of the Cleveland, Ohio, plant. Feucht, who will now be in

charge of all phases of the plant's operations, replaces Louis E. Dondero, who now manages the division's main plant at West Allis, Wis.



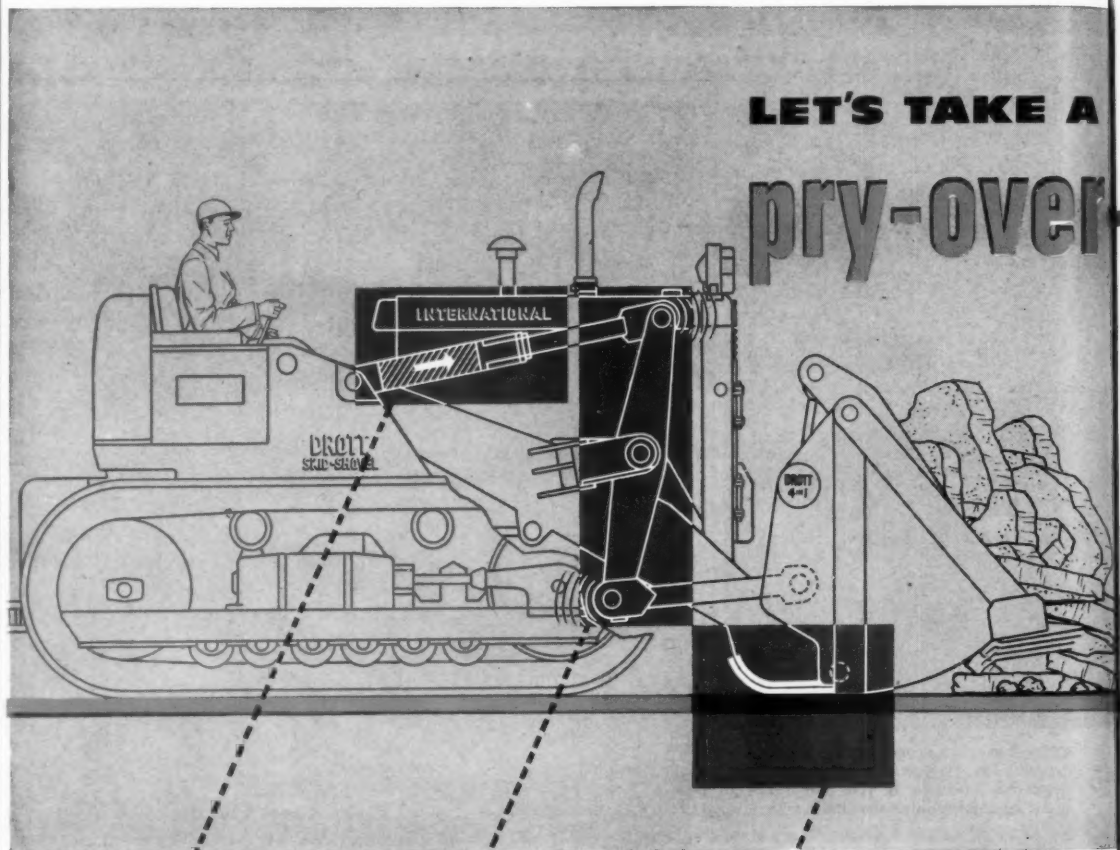
Thor awards salesmen

T. E. Vocker and T. J. Murphy have been named first and second place

winners, respectively, in a nationwide competition to select the "man of the month" among salesmen for the Thor Power Tool Co., Aurora, Ill. Vocker and Murphy led more than 200 Thor salesmen coast to coast, in outstanding sales achievements in the St. Louis, Mo., and New York areas, respectively.

Goodyear Tire news

A. B. Walter is on a leave of absence from the Goodyear Tire & Rubber Co., Akron, Ohio. Walter is a pioneer of belt conveyor systems in underground mines.



Full hydraulic power transfer! Famous International Drott triple-power hydraulic force results from ingeniously applying oil pressure upon the piston's *full face*—instead of using the customary, and limited, rod-end area for the "power-push" surface! Only International Drott gives you this tremendous hydraulic power to produce concrete-smashing, tree-grubbing, boulder-bucking pry-action break-out!

Far greater leverage. See how International Drott scientifically-correct *lever length* transfers *full* triple-power hydraulic force to the fulcrum. No costly power-dissipating "step-downs" here to lose one-fourth to one-half your hydraulic power, as ordinary design does! Instead, International Drott full power-applying leverage gives you tough-job-handling digging force and capacity ordinary loaders can't even begin to equal!

Ground-based fixed fulcrum! Here's how exclusive International Drott design provides the famous frame-mounted skid-shoes—to act as the absolutely necessary *fixed fulcrum*. Without this, true pry-action break-out is impossible. The big exclusive International Drott skid-shoes provide the steady, ground-based platform for true ground-level bucket-heaping roll-back of 41°!

Prove to yourself you command a vast new job-range and capacity—with this super-powerful excavating, bucket-heaping pry-action. See what happens when you team this performance with the *versatility unlimited* of an exclusive Four-In-One. Compare how *exclusive* shock-swallowing Hydro-Spring "gentles" trouble-causing impact by 67%! Ask your International Drott distributor for a demonstration!



International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL®
DROTT®

CONTRACTORS AND ENGINEERS

Eimco names Jennings

Melvin K. Jennings has been appointed director of public relations of the Eimco Corp., Salt Lake City, Utah, and its subsidiaries. Jennings, a veteran of 20 years' experience in newspaper, magazine, and publicity work, joined Eimco in January of this year. He was formerly with the United Press Association.

Twin Disc promotion

The new advertising and sales promotion manager for Twin Disc Clutch Co., Racine, Wis., is E. B. Falk, an 11-

year veteran of the firm.

Joining Twin Disc as a sales correspondent in 1946, Falk advanced to the posts of sales engineer, application engineer, installation engineer, and administrative assistant in the general sales department.

Bruning Co. appoints

John R. Hickman has been named director of personnel relations for Charles Bruning Co., Inc., Chicago, Ill., suppliers of engineering, drafting, and architectural equipment and supplies. Hickman was formerly with the B. F. Goodrich Tire Co.

Armco names Grant assistant manager

E. Roy Grant has been promoted assistant manager of the Rocky Mountain Division, Armco Drainage & Metal Products, Inc., Middletown, Ohio. Grant will be responsible for all phases of operation in the division.

Koehring names Dassler division chief engineer

A. L. Dassler has been promoted to chief engineer of the Koehring Division, Koehring Co., Milwaukee, Wis. Formerly assistant chief engineer,

A. L. Dassler, chief engineer of the Koehring Division, Koehring Co.



Dassler will supervise the design of the firm's line of shovels, hoes, draglines, and cranes.

He will also be responsible for engineering developments on other Koehring Division products, including the Dumptor, an off-highway hauling unit; the Mud-Jack slurry pump; longitudinal finishers; concrete mixers; and Twinbatch pavers.

Kenneth Johnson has been moved up to the post vacated by Dassler.

B-E of Canada now producing excavators

Excavator production has begun in the new plant built for the Bucyrus-Erie Co. of Canada, Ltd., Guelph, Ontario. The Canadian firm is now manufacturing the 22-B, a 3/4-cubic-yard model. For the first few months, the Model 22-B will be the sole product. Larger capacity excavators will be manufactured later.

James I. Carmichael is president of the Canadian company, F. Maurice Campbell is comptroller, and Ralph Tucker is manager of purchases.

Brunner & Lay opens new Canadian plant

Brunner & Lay, Inc., Franklin Park, Ill., have opened a new plant at 6301 Cote de Liesse Road, Montreal, Quebec, Canada. This plant will manufacture tungsten carbide Rok-Bits and tungsten carbide integral drill steel for the construction, mining, and quarrying industries. The plant will also produce a complete line of pneumatic tool accessories and drill steels.

E. A. Bowman is general manager of the Canadian plant.

Seaman-Andwall appoints Canadian representative

William McGillivray has been appointed sales manager in eastern Canada by Seaman-Andwall Corp., Milwaukee, Wis. McGillivray will work with equipment distributors and road construction contractors in Ontario, Quebec, the Maritime provinces, and Newfoundland. He will make his headquarters in Montreal.

Bendix Radio Division names regional manager

Joseph Schreiber has been appointed Southeastern sales manager for the Bendix Radio Division, Bendix Aviation Corp., Baltimore, Md. Schreiber will be responsible for the sales and service of Bendix mobile radio products in Florida, Georgia, Alabama, Louisiana, Mississippi, and Texas.

He was formerly advertising manager and assistant sales manager for the firm.

—For more facts, circle No. 248

A CLOSE LOOK AT TRUE shoe break-out action

Only original and exclusive International Drott design transfers full hydraulic power to give you tremendous extra excavating force!

Genuine pry-action break-out has three absolute essentials: (1) full hydraulic power transfer; (2) long lever, to apply pry-power without power loss; (3) fixed fulcrum, located to concentrate break-out force for maximum effect.

Kuschler Construction Co., New Orleans, Louisiana, specializes in demolishing old service stations to be replaced with super-service stations.

Kuschler tore down this old station in one day, then removed the concrete work the second day—doing the entire job with their International Drott TD-9 Four-In-One!

Previously, the contractor demolished the buildings and

Here's how exclusive International Drott "separates the men from the boys" in heavy-duty loader design—and gives you front-end loader performance and capacity nowhere else available.

concrete with compressed air hammers and a three-man crew. Their other make of front-end loader, without true pry-action break-out, was limited to loading debris.

Now, one man, using triple-power International Drott pry-action break-out, accomplishes as much in one day as the three-man crew and four separate items of equipment were able to do in a whole week!





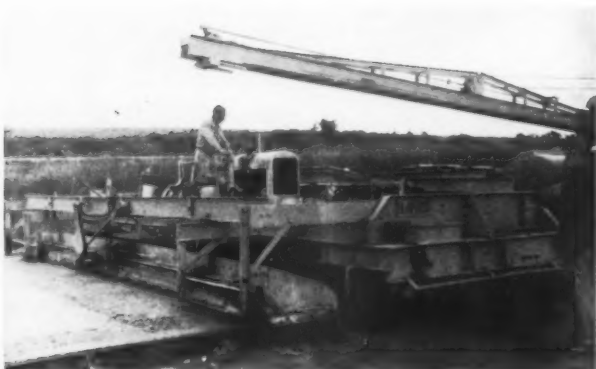
Working close together are the 5,800-gallon tank trailer pulling a mobile tool box, a GMC batch truck dumping to the Rex paver, the Blaw-Knox spreader, Jaeger-Lake-wood finisher, Koehring longitudinal float, and Heltzel Flex-Plane curing spray.

Spreader-operated

screed provided



The equipment makes a second pass after the reinforcing has been placed, and the Blaw-Knox paddle-type spreader uses the extra B-K reciprocating screed on the concrete.



Virtually acting as a second finishing machine in the train, the Blaw-Knox screed on the spreader leaves a smooth finish behind it.

To meet the ever increasing demands for smoother pavements while holding costs down, a Wisconsin paving contractor attached a reciprocating finishing screed to the rear of the spreader in his paving train.

Operated from the engine of the spreader by the spreader operator, the extra screed speeds up the work of the regular finisher that follows and permits the finisher operator to concentrate on getting the smoothest possible pavement.

One of the jobs done by James Cape & Sons, Inc., Racine, Wis., with this setup involved the paving of a 10-mile section of U. S. 18 between Mt. Horeb and Verona, Wis. A new alignment of this section of road had been graded the year before by S. J. Groves & Sons Co., Minneapolis, Minn., Frank Mashuda Co., Milwaukee, Wis., and Carl F. Raemisch, Madison, Wis. Each firm worked under a separate contract to grade and place the 6-inch course of crushed rock base on sections of the stretch.

The concrete paving slab, 24 feet wide and 9 inches thick, is reinforced

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- Blade pitch adjustable in motion.
- Safety throttle control to idle engine if machine gets away from operator.
- Sufficient weight to hard trowel—90 lbs.
- Sufficient power—2.2 H.P. Briggs and Stratton engine.
- Combination blades for float and finish.

A NEW TROWELER FOR SMALL BUILDERS

SMALL ENOUGH FOR ONE MAN TO CARRY THROUGH A DOOR

Also available (not illustrated) the popular WHITE T-1 36-inch troweler with retractable wheel. One man portability! Write today.

White

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... it costs less for accurate foundation data with ...

HOFFMAN "Oriented Diamond" DRILL BITS

Foundation exploration costs less with Hoffman Bits because they eliminate guessing about formation structures for quick, accurate job estimates. Exposing only the sharp, hard diamond edges to the work. Hoffman Bits cut rather than scrape. They produce clean, smooth cores at lower footage costs — use less power — last longer. Designed and tested for each application. Hoffman Bits are the answer where core drilling accuracy and economy are important.

Write today for catalogue and prices — FREE

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SINCE 1902

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Spreader operator works extra screed attached to the spreader; equipment improves slab smoothness



Subcontractor Stewart Watson Construction Co., Madison, Wis., finishes the stabilized gravel shoulders on a completed section of the roadway with a Cat No. 12 motor grader and a Grace 14-wheel rubber-tire roller pulled by a John Deere 70 tractor.

eprovides a finishing short cut

with welded wire fabric placed 2 inches down from the surface. The fabric has longitudinal 0-gage wires at 6-inch spacing and transverse 4-gage wires at 12 inches. In addition, there is a center joint reinforcing ladder of 2-gage steel at 10-inch centers, which was placed 4½ inches down from the top.

Dowels were placed for contraction joints at 100-foot intervals. These 1×18-inch rods with caps on one end were set at the mid-point of the depth of the slab at 12-inch centers across the joints. The contraction joints were sawed to a depth of 1½ inches after the concrete had set.

Paver pushes planer

After the form crew had set the 2,500 feet of Blaw-Knox 9-inch steel paving forms on the base, a Caterpillar No. 12 motor grader worked the base material to finished grade, pulling a Lakewood subgrader along on the forms for the final pass. Rolling by a Galion 5-ton tandem roller completed the subgrade preparation.

Since the strikeoff attachment

worked behind the paver, a Cleveland Trailplaner was pushed ahead by the Rex 34-E dual-drum paver. The paver worked inside the forms and, if its tracks disturbed the grade left by the planer, it was hand-straightened.

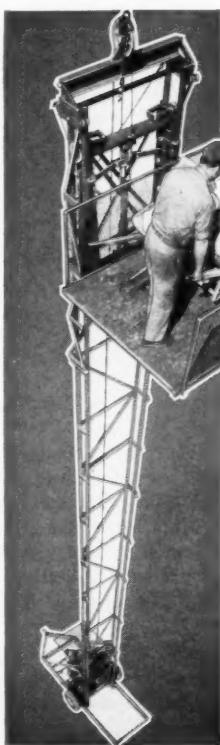
In preparing to move ahead, the paver placed a few batches in the center of the road. As it moved ahead, it pulled a strikeoff that cut the concrete down half the depth of the slab for the center-joint reinforcing ladder. When this reinforcement had been laid in place by hand, the paver placed more concrete across the entire width of the slab.

The Blaw-Knox paddle-type spreader then made its first pass, leveling the concrete to an elevation 2 inches below the finished grade. Workmen placed the main wire fabric reinforcing on this surface as the spreader backed up to make its second pass. When the paver had placed additional concrete over the reinforcing, the spreader made its final pass, cutting the concrete to the finished grade.

(Concluded on next page)

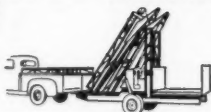


The last of four batches is dumped from a GMC "500" truck to the Rex 34-E dual-drum paver with the help of a hooked rod. The paver pushes a Cleveland Trailplaner so that the strikeoff has more room to cut down the first concrete.



the portable BUCK HOISTING machine

... gets you there **FASTEST**
with the **MOSTEST**



Tow it right to the jobsite

Fastest — in 23 minutes you're up in the air with your first load. 23 minutes from trailing to elevating.

Mostest — Buck takes 2,000 lbs. per load with platform . . . 17 cu. ft. with concrete bucket.

Highest — Takes your materials quickly to heights 100 ft. and up.

Lowest cost per ton lifted. No additional personnel required . . . one man does it all . . . easily. There's nothing like the Buck . . . it's a portable, self-erecting, self-contained hoisting machine.

For a free demonstration and more information contact any of the 73 Buck Dealers or write direct:

BUCK EQUIPMENT CORP.

720-D Anderson Ferry Rd., Cincinnati 38, Ohio

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Need HOSE in a HURRY?

**Suction • Water • Steam
Air • Multi-Purpose
Discharge • Pile Driver**

Wherever your job is—whenever you need hose—there's a Continental Warehouse nearby stocked to give you any kind of hose you want—when and where you want it.

There's no need to wait for distant shipments—no need to stop the job—no need to lose profits.

Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

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CONTINENTAL SUPER-HIGHWAY HOSE

This hard working, high-pressure water hose has top grade rubber tube wrapped with frictioned duck thoroughly bonded to tube and cover. Red rubber cover resists abrasion, cutting, gouging. Sizes: 1¼", 1½", 2", 2½", 3", 3½", 4". Ask for latest catalog showing full line of CONTRACTORS HOSE, HOSE FITTINGS, BOOTS and CLOTHING.

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A crane with Owen 2-cubic-yard clamshell charges the Butler 60-ton 3-compartment aggregate bin. The Butler cement plant has a 250-barrel capacity. This batching setup is located near the mid-point of the job.

(Continued from preceding page)

Extra finishing screed

As the spreader made the second pass, the operator lowered the extra finishing screed attached to the rear of the spreader. This was a standard Blaw-Knox reciprocating finishing screed powered by the engine of the spreader and controlled completely by the spreader operator. It produced a surface very much like that made by the first pass of the finisher and served almost as a second finishing machine in the train.

The remainder of the transverse finishing was done by a Jaeger-Lake-wood finisher, and the longitudinal finishing was done by a Koehring longitudinal finisher. A minimum of hand work, followed by a burlap drag, produced a surface that met the required $\frac{1}{8}$ -inch in 10 feet smoothness.

Curing was done by spraying the surface of the freshly finished concrete with Mac-Seal white pigmented curing compound. A Flex-Plane curing spray machine handled this job.

Contraction joints were sawed to a depth of $1\frac{1}{2}$ inches within 14 to 16 hours after the concrete had been placed; the center joint was sawed three to seven days later. Two Clipper concrete saws with diamond blades handled all of the sawing.

Four-batch trucks

Dry materials were batched from a plant set up beside the right-of-way near the mid-point of the project. A fleet of GMC "500" trucks carrying four batches per load made the hauls to the paver.

Cement arriving at the siding in Verona was unloaded from the rail cars by a Blaw-Knox 300-barrel transfer plant. This plant loaded the three International K-180 trucks, with 40-barrel covered dump bodies, which made the haul from the siding to the batch plant.

Sand and two sizes of coarse aggregate were trucked to the batch plant from the Verona Sand & Gravel Co. and charged into the elevated bin by a crane with an Owen 2-yard clamshell bucket. A subcontractor, Friede Excavating & Trucking Co., Madison, Wis., trucked the aggregates to the plant and also hauled the batches to the paver.

Water pumped from a nearby creek with a Rex 3-inch pump was hauled to the paver in 1,200-gallon tank trucks. These nurse trucks pumped the water into a 5,800-gallon trailer tanker pulled by a Mack truck. This stayed close to the paver throughout the job.

The stabilized gravel shoulders on each side of the paving slab were built by a subcontractor, Stewart Watson Construction Co., Madison, Wis. Another subcontractor, Ryan Bros. Co., Janesville, Wis., obliterated the abandoned portions of the old road.

Personnel

Supervising the paving operations was Bob Cape. He was assisted by Walter Homan at the plant, Sherman Wonders on the subgrade and Ray Pennell at the paver. The Wisconsin State Highway Commission was represented by resident engineer Jack Gerlach. The work was done under the supervision of the Madison District, which has J. C. Jones as district engineer. The construction engineer for the Wisconsin Department is S. E. Hicks.

THE END

CONTRACTORS AND ENGINEERS

Demo unit d

The Trailer developed machine the U. now go Monmo deen P. If co the ma perman truck-n now be The HL ing ma hydraul horsepo unit wi holes u conditi and is winch setting

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Build cover

"Build Adon metals, reading fication hardwa and te from th sion, Philade Chap topics lock si ware, building and ta Price chased AUGUS

When strategic aircraft requirements indicated a **NEW** type of universal joint, **MECHANICS** engineers developed it. Design, metals, machining, tolerances, heat-treating, hardening, stamina, balance and lubrication — all were adapted to specific aircraft precision. Let **MECHANICS** engineers design and build universal joints that are equally well suited to the exact power trans-

mission needs of your product. The competitive advantages that designed-for-the-job **MECHANICS** Roller Bearing **UNIVERSAL JOINTS** provide, are well worth investigating—while your new models still are on the drawing board.

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For Cars • Trucks • Tractors • Farm Implements • Road Machinery •
Aircraft • Tanks • Busses and Industrial Equipment

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Demountable earth-boring unit developed by firm

The Signal Corps and Highway Trailer Co., Edgerton, Wis., have developed a demountable earth-boring machine to meet the special needs of the U. S. Army. The machine will now go through further tests at Fort Monmouth, N. J., and at the Aberdeen Proving Ground, Md.

If conclusive results warrant it, the machine may in time replace the permanently attached Highway HD truck-mounted earth-boring units now being used by the Signal Corps. The HDAMS demountable earth-boring machine is powered through a hydraulic fluid motor developing 56 horsepower. The extra-heavy-duty unit will dig 9 to 30-inch-diameter holes up to 10 feet deep in any soil condition. It has hydraulic controls, and is equipped with an integral winch and derrick to handle pole-setting operations.

New air spring designed for heavy equipment

The General Tire & Rubber Co. has completed the development of a compact air spring designed for nearly every type of rubber-tire vehicle, including trucks and other heavy equipment.

Company engineers say the unique design, in effect, does away with most springing limitations, making possible a performance and adaptability superior to any spring on the market.

The new General Tire air spring is a band-diaphragm type—an air cell retained by a metal band to form a rolling diaphragm. As in all air springs, the load is supported by air pressure acting against an area called the "effective area", which permits a constant vehicle height regardless of load.

According to the manufacturer, the characteristics of the General Tire spring can be fashioned to suit the suspension engineer's requirements because of its design flexibility. The effective area change, in combination with the adiabatic compression of air, determines the spring characteristic. On the General Tire spring, the effective area can be controlled so that it gives the desired vibration frequency, or spring rate.

Builders' hardware book covers all phases of job

"Builders' Hardware Handbook", by Adon H. Brownell, covers products, metals, finishes, scheduling, blueprint reading, sales and service, and specifications. Designed for architects, hardwaremen, contractors, students, and teachers, the book is available from the Chilton Co., Inc., Book Division, 56th and Chestnut Streets, Philadelphia, Pa.

Chapters in the book discuss such topics as the hinge side of the door, lock side of the door, window hardware, hardware for specific types of buildings, and management. Diagrams and tables abound in the book.

Priced at \$8, the book may be purchased from the publisher.

Inspecting the demountable earth-boring machine are, left to right, Henry C. Stricker, Jr., Highway Trailer chief engineer; Harold Ryder, Signal Corps Engineering Laboratory, Fort Monmouth, N.J.; Marvin G. Gietzel, Highway Trailer chief engineer; Norman Yeske, Highway Trailer general foreman, utility division; and George Connors, Highway Trailer product design engineer.



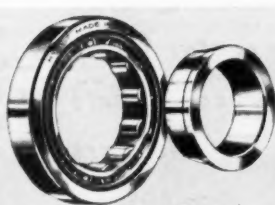
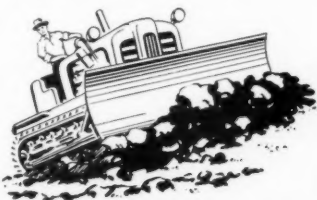
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HYATT HY-ROLL
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every
speed—



LOW

Industrial Inch Series
For speeds up to 600 rpm

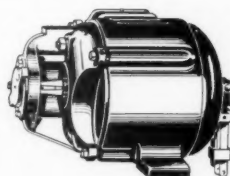
Specifically designed for slow-moving, heavily loaded machinery where large diameter shafts are the rule. Available in fractional size bores for shafts from 4 inch diameter upwards.



MEDIUM

Hy-Load Series
For speeds up to 5,000 rpm

High-capacity cylindrical roller bearings for heavy radial loads and light or intermittent thrust loads. Available in a complete range of sizes and types.



HIGH

Aircraft Series
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Ultra-high-speed cylindrical roller bearings for jet engines and similar applications where rpm's are extremely high. Available in over 100 sizes and types.



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Draglines, dozers team up ex



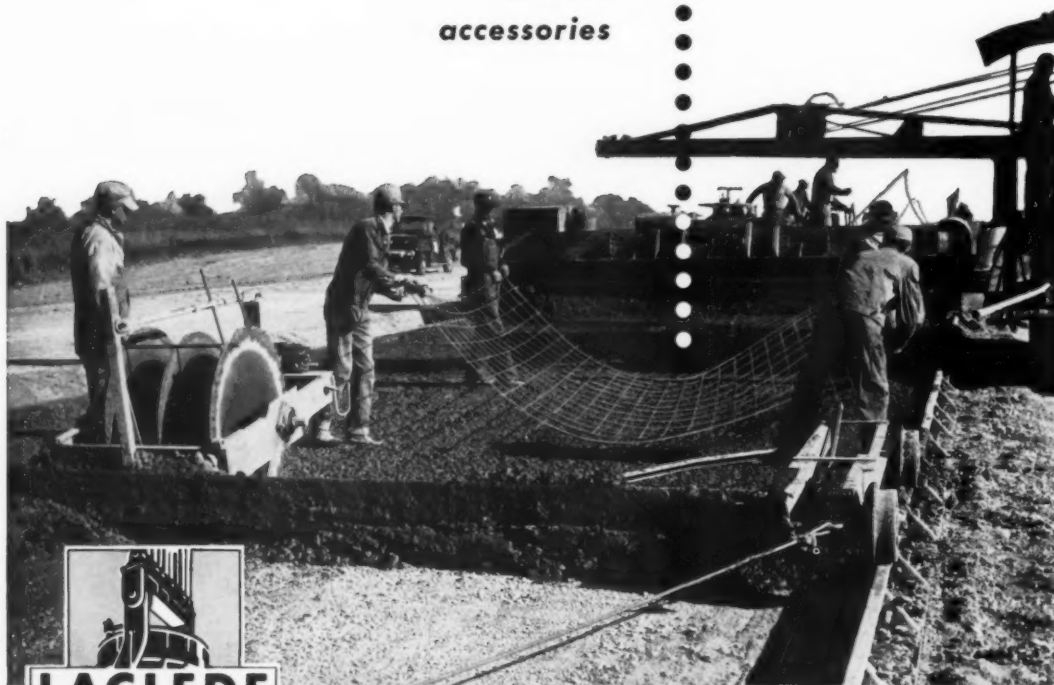
The Bucyrus-Monighan 5W walking dragline, with 120-foot boom and 6-yard Hendrix dragline bucket, picks up the material from the old river channel bottom and casts it as far as possible for dozing by a Caterpillar D9.

new Highway 40 by-pass gets a sturdy "backbone" with LACLEDE WELDED WIRE FABRIC

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Working as a matched team, a big dragline and tractor-dozers are moving a large part of the short-haul dirt on the fourth stage of the \$17 million Oklahoma City floodway system. A spread of rubber-tire scrapers handled the longer hauls. When the \$1.7 million phase IV contract is completed at the end of this year, the floodway will be 90 per cent complete and will be put into operation.

Designed by the Tulsa District of the U. S. Army Corps of Engineers to protect the low-lying portions of the city against the flood waters of the North Canadian River, the job is being jointly financed by federal and city funds. Work on the floodway was started in 1952, and is scheduled for completion in 1958.

The phase IV contract, held by S. W. Hardwick Co., Beardstown, Ill., begins at South Western Avenue in Oklahoma City and extends westerly about 3.5 miles to a junction with the old river channel, about 1,300 feet west of Portland Avenue. In general, the old river channel is being straightened and improved, adjacent banks built up, and part of the channel relocated.

The typical channel bottom varies from 300 to 425 feet wide. Of this, 50 feet on each side has a slope of 50 to 1 to encourage low water flow in the center of the channel. The 2 to 1 side slopes range from 12 to 15 feet in height plus a variable freeboard depending on the amount of material available. These slopes are protected with a foot of stone riprap on a 6-inch sand and gravel backing.

Material cast, dozed

More than half of the 4 million cubic yards of earthwork in this stage is being removed less than 800 feet from the channel section to build up the adjacent banks. It is on this short-haul operation that the combination of a Bucyrus-Monighan walking dragline and a Caterpillar D9 tractor-dozers proved especially economical.

The Monighan 5W is powered by a Fairbanks 6-cylinder diesel engine developing 300 horsepower. In addition there is an air-controlled Cummins 50-kw diesel-generator set powering the swing, air compressor, and other parts.

Using a Hendrix 6-yard dragline bucket on its 120-foot boom, the Monighan digs from one side of the channel and casts the material toward the opposite bank. A Caterpillar D9 tractor-dozers then pushes these piles of material back to the edge of the floodway.

If the dirt has to be moved less than 600 feet, one of the big D9 dozers is just about able to keep pace with the Monighan. On a push of about 300 feet, one of the D9 tractor-

CONTRACTORS AND ENGINEERS

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up excavate floodway channel

Short-haul dirt cast and dozed aside; scraper fleet on average 3,200-foot haul moves 9,000 yards of material in 2-shift day

dozers moved 6,000 cubic yards in a 24-hour period. This just about equalled the production of the Monaghan in the same period under good conditions.

Where the material had to be pushed longer distances, Hardwick used a second D9 and an Allis-Chalmers HD-21 tractor-dozers. The HD-21 also worked with the dragline building the bench on which it operated

and also cleaning up.

At the westerly end of the project, a new channel was constructed, and the old river channel filled. A pilot channel had to be opened for the water before the old channel could be completely blocked. To open the pilot channel, the contractor used a dragline with a Hendrix 2 3/4-yard bucket which dug down to grade at the center of the channel, casting the

material to one side. This material was cast a second time and then dozed to the edge of the floodway.

Scrapers make longer hauls

Nearly half of the total yardage had to be hauled a greater distance than could be done economically by the casting and dozing method. The general contractor sublet this operation to R. Cozad, Sulphur, Okla., which

used a spread of rubber-tire scrapers consisting of one Euclid TS-18 and four Caterpillar DW21 scrapers, a Caterpillar D9 and Allis-Chalmers HD-21 as push tractors, an Adams Model 610 motor grader, and an Allis-Chalmers HD-16 tractor-dozers plus a D8 tractor dozer.

Although the soft sandy material was difficult to load, the powerful push tractors enabled the scrapers to

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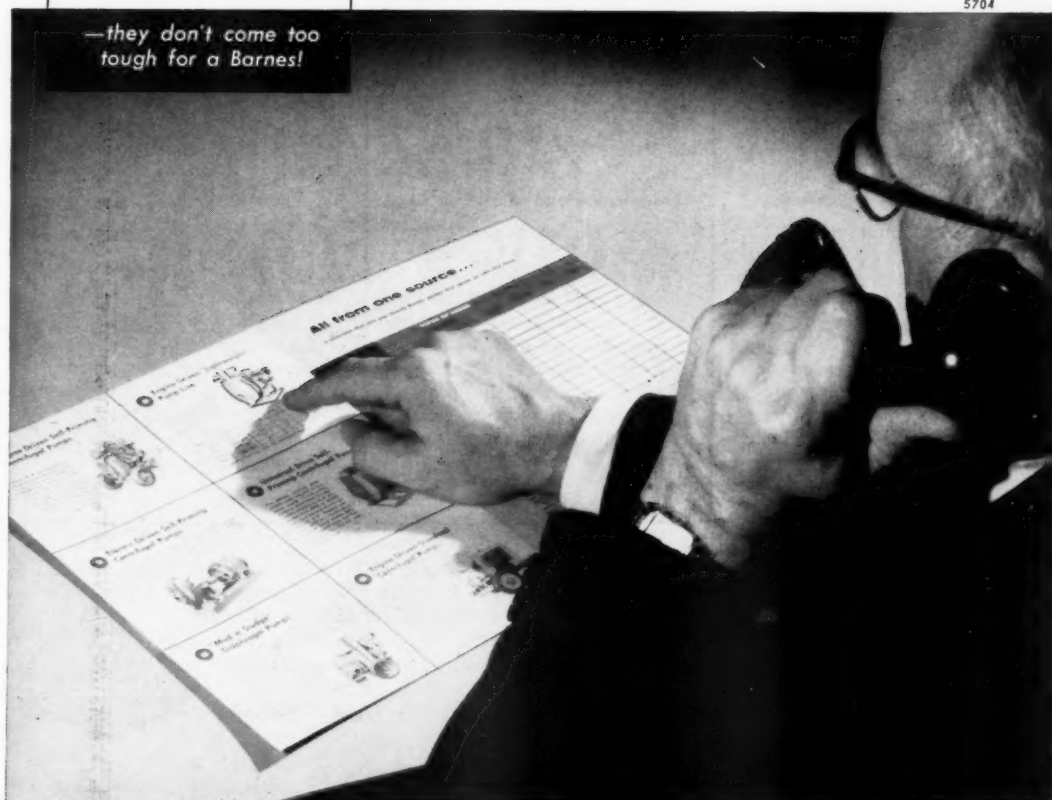
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For more facts, use Request Card at page 18 and circle No. 256



Matching the pace of the Bucyrus-Monaghan is the Caterpillar D9 which carries the material back to the edge of the floodway. The dozer, in pushes of about 300 feet, moved 6,000 cubic yards in a 24-hour period.

Long-haul work was subcontracted to R. Cozad, Sulphur, Okla. This Caterpillar DW21 scraper and D9 push tractor were used by the firm to carry river sand to the disposal area, dump without slowing down, and then head back to the channel.



(Continued from preceding page)



Three important reasons why you should specify Wheeling Corrugated Metal Pipe



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For more facts, use Request Card at page 18 and circle No. 257

get heaping loads in a very short time. The scrapers got out of the excavation in the highest possible speed and maintained maximum speed to the disposal areas. Here they dumped without even slowing down, then turned and headed back for the excavation with no lost time. On an average 3,200-foot haul, four DW21 scrapers and the D9 pusher moved 9,000 cubic yards of material in a 16-hour, 2-shift day.

Maintenance of the haul roads and dump surfaces was an important factor in this high speed operation. An Adams 610 motor grader worked constantly to maintain the sandy haul roads, and a Chevrolet water truck carrying a 2,000-gallon tank sprinkled the roads regularly. The Allis-Chalmers HD-16 tractor-dozzer prepared the disposal areas for the scrapers and maintained the surfaces during the hauling.

All excess material was used to fill abandoned portions of the old channel and other low areas nearby.

Riprapped banks

Following the main excavation, the banks of the channel are being dressed by a track-mounted Gradall, and covered with riprap. A 2-yard clam and a ¾-yard shovel are being used to bring the 2 to 1 bank slope down about 9 feet below the finished channel bottom to form a toe trench for the riprap. A 6-inch course of sand and a 6-inch course of gravel backing is first placed on this slope, and then covered with a foot of rock riprap. The tow trench is then back-filled up to the normal channel bottom, and the riprap and backing are placed up to the top of the bank. A total of 200,000 tons of riprap and backing are required for the job.

Personnel

Supervising the project for S. W. Hardwick Co. was John Koeper, a partner in the firm. He was aided by assistant superintendent John H. Davis and project engineer Walter Pape. The earthmoving operations of the Cozad firm were supervised by Jack Prough.

For the Corps of Engineers, Gordon Shepard is resident engineer, R. K. Little is assistant resident engineer, and Ivaughan Bates and William Hudson are field engineers. Coordinating engineers representing Oklahoma City are Otto Johnson and Harry Lee.

THE END

CONTRACTORS AND ENGINEERS

Hydra

A 20, ripper, attached to and pushed by the S

For h 3½ x 14- According pressure can be 4-inch p

The r with th mounted adjusta with per

PRODUCT PARADE

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

Hydraulic monster mauls, rips to 36 inches

A 20,000-pound integral tandem ripper, designed to be directly attached to one Caterpillar D9 tractor and pushed by a second, is announced by the Shepherd Machinery Co.

For heavy rock ripping, a single $3\frac{1}{2} \times 14$ -inch center tooth is used. According to the manufacturer, down pressures in excess of 160,000 pounds can be concentrated on a single 4-inch point.

The ripper may also be used singly with the machine on which it is mounted, and is equipped with three adjustable-depth 4x16-inch shanks with penetration depths to 36 inches.

Despite the weight of this juggernaut, the manufacturer claims that its trunnion mount directly to the track frames greatly reduces the strain on tractor structures, as well as providing improved penetration angles.

For pushing, a D9 or smaller tractor may be used, utilizing a standard bulldozer of C-frame-type push plates.

For further information write to the Shepherd Machinery Co., Dept. C&E, P. O. Box 6789, East Los Angeles, Calif., or use the Request Card at page 18. Circle No. 170.



The Smith mixer is virtually vibrationless, requiring no special installation. It has its own support and can operate without any hold-down devices.

Unique mixer ups cycle speed, cuts costs

Of special importance in prestressed and precast concrete operations, the new T. L. Smith turbine-type mixer is said to provide an extra-high-strength concrete, while at the same time affording a substantial savings in time and materials.

The unit's doughnut-shaped mixing drum, with drive mechanism located in the center, allows for high peripheral speed in the entire mixing

area. In addition, the blades are positioned so as to braid the material at the rate of 9 fps. The result is said to be a much faster and more thorough, as well as stronger, mix.

The entire top of the mixing drum is open, permitting direct charging from any angle. Discharge is accomplished by opening a semicircular door that can be located in any section in the bottom of the mixing tank.

The unit is manufactured in $\frac{1}{2}$, 1, and $1\frac{1}{2}$ -cubic-yard sizes. It weighs about 3,100 pounds in the $\frac{1}{2}$ -yard size, 5,500 pounds in the 1-yard size, and 7,750 pounds in the $1\frac{1}{2}$ -yard size. Over-all height is approximately 48, 56, and 59 inches, respectively.

Though basically a stationary type unit, the mixer is equipped with a lifting hook. When handled by crane or transported on a monorail, it becomes its own bucket and can be used to mix while transporting the batch to the pouring site.

For further information write to the T. L. Smith Co., Dept. C&E, 2835 N. 32nd St., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 169.



Improved transit mixers offer many new features

High-speed cycle, along with improvements in design and operational simplicity, are available in the new Rex Adjusta-Wate Moto-Mixers.



Its new, improved line of Rex Adjusta-Wate Moto-Mixers is announced by the Chain Belt Co. The units have a single-lever operation with a new design instrument panel having all controls clustered close before the operator.

Features such as a larger and steeper-sloped hopper opening, increased drum rpm, new fast shrink blade located in the drum head, and a design that keeps mixed material at the front of the drum, are said to permit faster charging of the new models.

For the mixing operation, a faster,

more efficient action is achieved by the Rex 12½-degree drum.

To increase discharge speed, there is a one-piece U-shaped blading arrangement which forms a uniform trough throughout the drum. Lower drum inclination reduces the angle the material has to climb for discharge, further speeding this part of the cycle. Also promoting swift discharge speed is a new deep-dished spout which gets the batch out fast and clean, according to the manufacturer.

Weight of the drum has been lowered over former models, while

strength is said to be greater.

The drum blades have heat-treated lips for longer service life. Drum wear is said to be lessened by the low-incline drum mounting which prevents destructive head-end scouring.

There is an all-new frame fabricated of Z-section members. Also new on this series are offset drum rollers to counteract the tendency for the mixer to lift off the right roller and cause excessive wear.

A wide range of accessories for any operating requirement is offered.

These include new saddle-mounted flush tanks as well as above-cab flush and 2-compartment syphon tanks. Water systems include the Rex self-priming centrifugal pump or A.P.I.-approved pressure system.

The models may be equipped with either rear-mounted power or front end power take-off.

For further information write to the Chain Belt Co., Dept. C&E, 4701 W. Greenfield Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 95.

New rotary air drill digs holes to 500 feet

A rotary air drill mounted on a self-propelled air compressor for use in well, blast hole, and exploratory drilling, is announced by Schramm, Inc. Designated the Pneumatractor Rotadrill, the unit is said to feature convenient hole-to-hole maneuverability and economical operation. The Pneumatractor on which the Rotadrill is mounted is both a 125 cfm compressor and a wheel tractor, eliminating the cost of a separate tractor.

According to the manufacturer, the Rotadrill can be moved from hole to hole more rapidly than a conventional three-piece unit, and can work in

tight places not accessible by truck-mounted drills. A low center of gravity combined with wheel-tractor drive allows this unit to negotiate easily through rough terrain.

Drilling with the Pneumatractor Rotadrill is said to be faster and simpler than with wagon drills or churn drills, with one-man operation possible in many applications. Rotary air drilling is accomplished through a reversible hydraulic motor-driven head, mounted on a carriage that rides tracks on the mast. This hydraulic drive eliminates the rotary table and Kelly bar. Holes can be

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The Model 9U bulldozer, the newest tool introduced for use with the Caterpillar D9 tractor, is designed to minimize end-spillage of material.

Dozer features blade said to cut spillage

The Model 9U bulldozer, a new tool for the Caterpillar D9 tractor, is available from the Caterpillar Tractor Co. The unit is said to be ideally suited for such jobs as stripping and pioneering, with a design that allows it to retain large loads on long-distance moves.

The new bulldozer is designed with a straight center section and two side sections angled forward. The side sections cast material inward, and the straight center section pushes the

material ahead of the blade, providing for a minimum of end spillage.

The box-type construction of the 9U gives rugged strength with minimum weight for handling tough materials, the manufacturer states.

Over-all width of the new tool is 14 feet 10 inches, and its weight is 12,496 pounds.

For further information write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 136.



Rockwell Lime assigns tough jobs to FULLER Transmissions

A Rockwell Lime Co. FWD 6-wheel-drive transport tractor equipped with 8-speed R-46 Fuller semi-automatic ROADRANGER Transmission.

Rockwell Lime Company, Chicago and Berwyn, Illinois, delivers ready-mix concrete to the pour site through sticky mud or sand—with 10-speed Fuller 10-CB-65 Transmissions in its rapidly expanding fleet of FWD 6-wheel-drive trucks equipped with 501" engines.

For heavy-haul operations, over-the-road and off-highway, Rockwell Lime uses a rugged FWD 6-wheel-drive rear dump tractor equipped with an 8-speed Fuller R-46 ROADRANGER® Transmission. This unit is capable of top legal highway speeds, as well as difficult backing and maneuvering through building and off-road areas . . . often several blocks at a time.

In heavy duty construction and transport work, wherever the going



One of Rockwell Lime's fleet of FWD 6-wheel-drive ready-mix units with 10-speed Fuller 10-CB-65 Transmission.

is extra rough, Fuller Transmissions put horsepower to work effectively. The closely-spaced ratios permit operators to select exact working speeds required. There's better load control, and engines operate in peak hp range with greater fuel economy.

From more than 110 different models available, there is a Fuller Transmission designed with your job in mind. Check with your local truck

dealer for the right Fuller Transmission for your job.

FULLER

TRANSMISSIONS

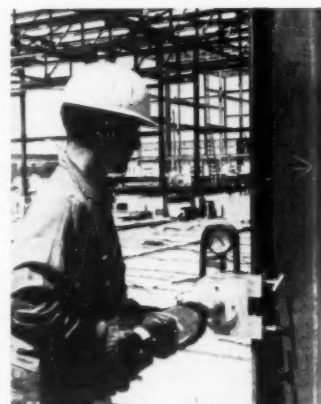
FULLER MANUFACTURING CO. Transmission Division • Kalamazoo, Mich.
Unit Drop Forge Div., Milwaukee 1, Wis. • Shafter Axle Co., Louisville, Ky. (Subsidiary) • Sales & Service, All Products, West. Dist. Branch, Oakland 6, Cal. and Southwest. Dist. Office, Tulsa 3, Okla.

For more facts, use Request Card at page 18 and circle No. 259

Impact wrench calibrator is shock-resistant

A new heavy-duty hydraulic impact wrench calibrator, designed for measuring bolt tension and calibrating impact wrenches, is announced by Skidmore-Wilhelm Mfg. Co.

The new unit, designated Model ML, is specifically built for use on heavy construction jobs. Model ML



The Skidmore-Wilhelm heavy-duty impact wrench calibrator is equipped with a special shock-resistant unit that protects the gage from impact during calibration.

measures bolt tension from 0 to 100,000 pounds, in bolt sizes ranging up to 1 1/4 inches.

The Model ML is also equipped with a special shock-resistant unit that protects the gage against impact when calibrating power wrenches.

The new unit is portable, and can be attached readily to a girder or other outside structure for use, the manufacturer states.

Using a hydraulic principle of operation, the Model ML is said to enable the operator to make quick, accurate checks without special training. Special adapters and bushings which come as part of the unit permit testing of bolts in a full range of sizes.

For further information write to Skidmore-Wilhelm Mfg. Co., Dept. C&E, 442 S. Green Road, Cleveland 21, Ohio, or use the Request Card at page 18. Circle No. 151.

For more facts on these products, circle the indicated number on the Request Card at page 18.

CONTRACTORS AND ENGINEERS



The 1,250-gallon Aeroil bituminous distributor circulates 250 gpm through the spray bar, providing direct feed all along the bar, for balanced pressure.

Bituminous distributor circulates 250 gpm

A 1,250-gallon bituminous distributor is announced by Aeroil Products Co., Inc. The unit is said to apply the heaviest material, through spray bars up to 24 feet long, more evenly and with less delay.

According to the manufacturer, the circulation of 250 or more gpm through the spray bar causes the bar to heat faster. This circulation system provides direct feed to nozzles all along the spray bar, effecting a balanced pressure.

The spray bar, as well as the piping system and pump, can be drained quickly, with material going back into the tank, and the system can be flushed out, it is reported.

The industrial engine is side-mounted and of all-welded, cradle construction. Fast, safe heating is said to be provided by the unit's single-pass, furnace-type flue.

For further information write to Aeroil Products Co., Inc., Dept. C&E, 75 Wesley St., South Hackensack, N. J., or use the Request Card at page 18. Circle No. 13.

Add three new series to chain saw line

The addition of three new series of saws to its present four standard series is announced by the Bolens Products Division, Food Machinery & Chemical Corp.

Features of the new Series 5500 direct-drive saw include: rugged, lightweight engine with full 6.46-cubic-inch displacement, right-hand starter, spark arrester muffler, and a built-in air filter.

The 5600 Series offers a chain speed of 1,530 fpm; the 5700 Series, a chain speed of 980 fpm. The steel and precision-cut molded gears are interchangeable between these two series.

Other features include: pistol-grip rear handles, automatic clutch, premium hard-nose guide bars, multi-position front handle with pivot-point balance, positive pressure oiler, and a complete range of bar and chain lengths.

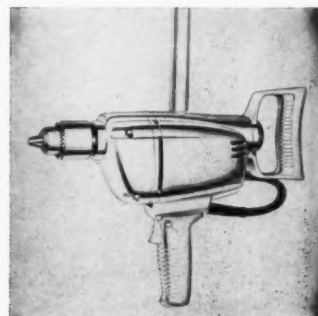
For further information write to the Bolens Products Div., Food Machinery and Chemical Corp., Dept. C&E, P. O. Box 145, Port Washington, Wis. Circle No. 126.

Drill has adjustable handle for tight work

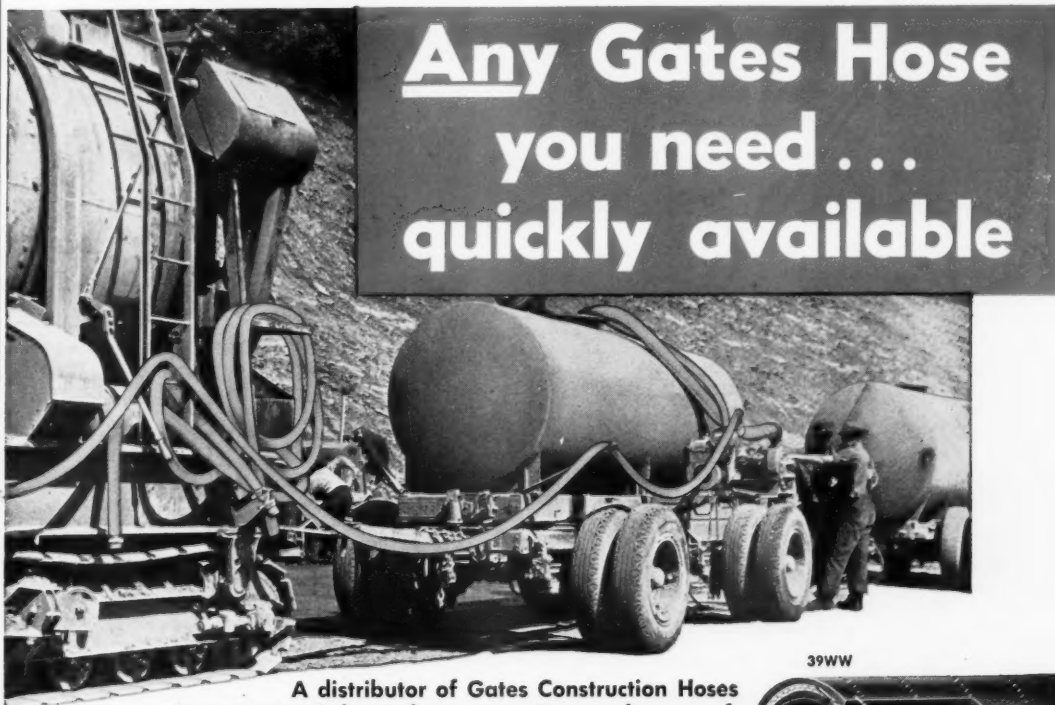
An extra-heavy-duty $\frac{1}{2}$ -inch drill with adjustable or removable 4-position rear handle is announced by Portable Electric Tools, Inc.

The armature has two ball bearings and the spindle has ball and needle bearings. The motor is said to pull a full 5 amps. Gears are precision-cut from stressproof alloy steel that is strain-relieved and heat-treated before machining. In addition, the drill is equipped with gear-type chuck and key, and a 10-foot rubber-covered three-wire cord with molded strain relief, plug, and adapter.

For further information write to

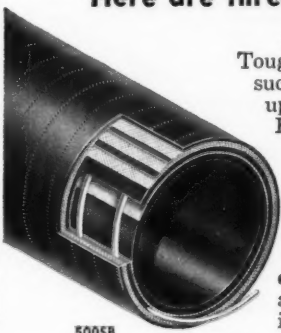


Portable Electric Tools, Inc., Dept. C&E, 320 W. 83rd St., Chicago 19, Ill., or use the Request Card at page 18. Circle No. 4.



A distributor of Gates Construction Hoses is conveniently located near you. You can be sure of getting the right hose quickly for any construction job.

Here are three popular types:

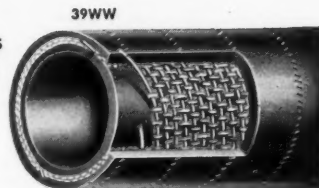


5005B

39WW Gates Water Suction Hose

Tough but flexible, this all-purpose, heavy-duty suction hose is used for the intake side of any pump requiring hose up to 4" inside diameter. (Can also be used for discharge service.)

Reinforcing wires and cords are interlaced to provide a strong, well balanced construction.



39WW

5005B Gates Heavy Duty Water Suction Hose with maximum

crush resistance. This heavy duty hose has rugged spring steel wire and strong fabric reinforcing to make it practically crush-proof. Tube is compounded to handle abrasive fluids such as those encountered in construction work. Recommended for use on 4", 5" and 6" centrifugal, diaphragm and piston type pumps. Made with inside diameters from 2" to 6".

35B Gates General Purpose Water Hose

for long life in rough service. A superior hose for all types of wet-down service ... for concrete making ... for discharge on small pumps. Top quality black rubber cover is built to withstand rough usage and exposure to weather—won't chip or scuff off. Tightly twisted cords provide rugged reinforcement—permit use of high water pressures. Heavy gauge tube compounded for long service. Available in long, continuous lengths— $\frac{1}{2}$ " through 1 $\frac{1}{2}$ " inside diameters.



35B

The Gates Rubber Company, Denver, Colorado

The Mark of Specialized Research

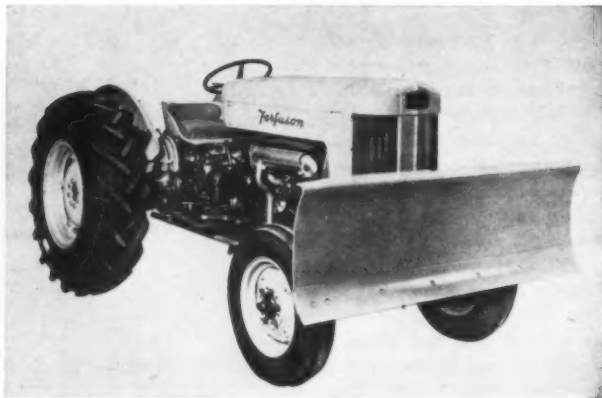


Gates Distributors
are in the
Yellow Pages

TPA 164

Gates Construction Hose

For more facts, use Request Card at page 18 and circle No. 260



The Earthco dozer is shown attached to the main frame of a Ferguson 40 tractor. The dozer is adaptable to a wide variety of tractor units.

Dozer is attached to main frame of tractor

A new heavy-duty dozer designed for attachment to the main frame of the tractor is announced by the Earth Equipment Corp.

The Earthco dozer is adapted to the International 350 utility, Ferguson 40, Massey-Harris-Ferguson, Massey-Harris MH-50, Massey-Harris-Ferguson Work Bull 202, Ferguson 35, and Ford 600 and 800 Series tractors.

The mode of attachment enables the dozer blade to remain in the same plane with the rear axle of the

tractor regardless of the terrain the front wheels pass over.

The unit has a standard moldboard length of 72 inches. The cutting blade is of 1/2-inch by 6-inch grader steel and is replaceable.

The two hydraulic-operating rams of the dozer are hard chromed pistons using the O-ring seal principle. All moving parts have zerk fittings for lubrication. In up position for transportation the dozer has a 16-inch ground clearance. In the full down position it has a penetration of 3 inches.

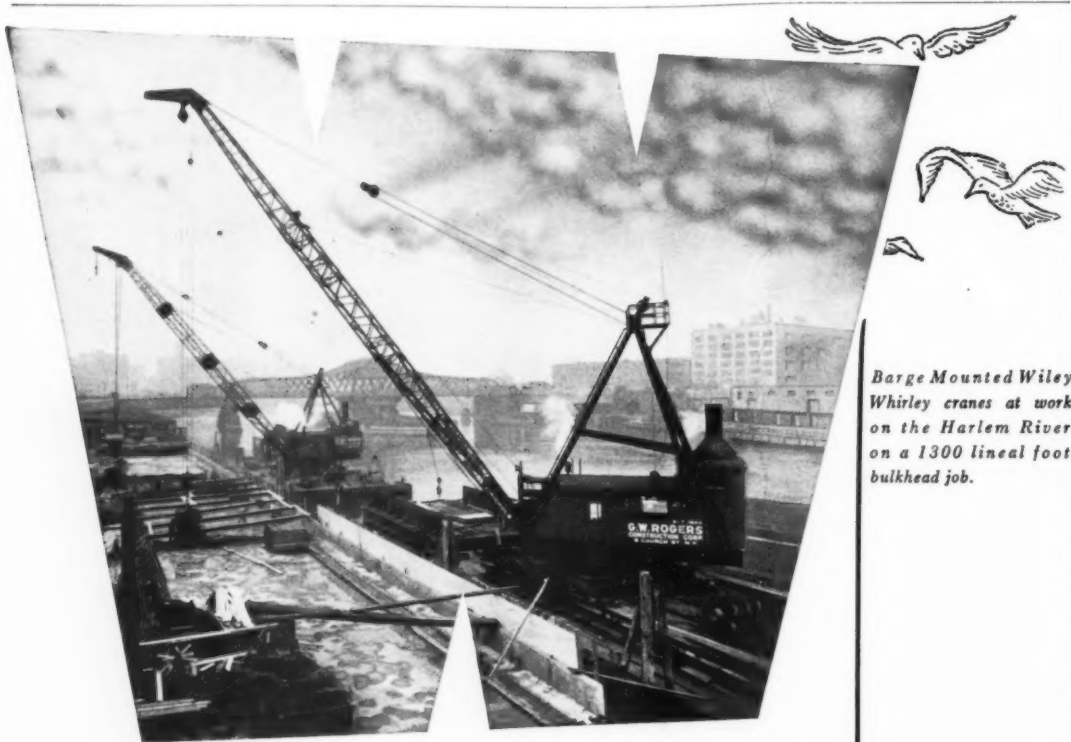
Any one of the numerous hydraulic valves now available to tractor dealers may be used to operate the Earthco dozer. Valves which divert fluid under pressure from the tractor to a one-way hydraulic external ram will accomplish the job successfully, the manufacturer reports.

For further information write to Earth Equipment Corp., Dept. C&E, 2036 Sacramento St., Los Angeles 21, Calif., or use the Request Card at page 18. Circle No. 15.

Level-transit features versatility, accuracy

A new level-transit is announced by the David White Instrument Co. Designated Model 8006, the instrument is said to be ideal for jobs such as finding differences in elevation, running lines for curbs and sidewalks, plumbing walls and uprights, ascertaining slopes for tilting and drainage, and for obtaining horizontal angles of any desired degree and running precise levels.

Although originally intended for small job requirements, the level-



Barge Mounted Wiley Whirley cranes at work on the Harlem River on a 1300 lineal foot bulkhead job.

WILEY...

for dependable
**ENGINEERING &
WORKMANSHIP...**

George W. Rogers, president of the George W. Rogers Construction Company, thinks very highly of the full revolving steam Wiley Whirleys shown above. He said they are ideal for his heavy construction work because "They are fast and hefty . . . and the maintenance is very nominal indeed."

Mr. Rogers said that the best indication of his feeling about these cranes is the fact that they have another one on order.

A SUBSIDIARY OF



WILEY

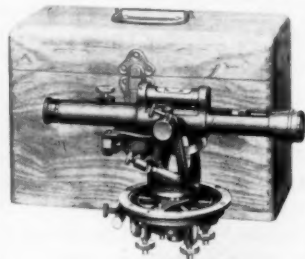
MANUFACTURING COMPANY
Port Deposit, Md.

• COAL BARGES • FLOATING CRANES • PILE DRIVERS • TUG BOATS



Write for free 38-page illustrated brochure, showing Wiley cranes, barges, tugs, etc., on the job.

For more facts, use Request Card at page 18 and circle No. 261



transit can serve as a valuable auxiliary instrument on large-scale projects, the manufacturer states.

The main feature of the device is the level lock lever consisting of a solid lock bar. This bar moves across the right side of the standard, engages the solid prong of the telescope clamp assembly, and locks into position at the other standard. The lever can easily be released for tilting the telescope. According to the manufacturer, the user is able to quickly and accurately line up the instrument, thus assuring positive leveling.

For further information write to David White Instrument Co., Dept. C&E, 2501 N. 19th St., Milwaukee 5, Wis., or use the Request Card at page 18. Circle No. 137.

CONTRACTORS AND ENGINEERS



New troweling machine has manual clutch unit

A 42-inch troweling machine, said to be easier to handle than many smaller units, is announced by the Stow Mfg. Co.

The G42 has a 3.6-hp engine and is furnished with four finish blades and four float blades, both of which are reversible for double life. The machine has a manual clutch control that stops the blades from rotating the instant the operator lets go of the handle, without stopping the engine. This is said to be not only an important safety factor, but makes it easy to start the engine, unlike centrifugal-clutch units, at full throttle.

The G42 also has a height adjustment on the handle to suit the operator. The guard ring is stationary, allowing the operator to work close to walls and other obstructions.

For further information write to Stow Mfg. Co., Dept. C&E, 40 Shear St., Binghamton, N. Y., or use the Request Card at page 18. Circle No. 140.

Offer plastic connection for detonating fuse

A plastic connector designed to provide a simple, effective method of hooking up detonating fuse before blasts are set off is announced by the Austin Powder Co.

When used for joining trunk and branch lines, the new connector is said to assure a positive coupling that will not slip, loosen, or lose contact in any weather or under any job condition. It also eliminates tying knots.

According to the manufacturer, detonating fuse is fastened in the connector in an easy 3-step operation. First, the fuse from the shot hole is threaded through the length of the connector. Then, the trunk line is pressed into the grooved slots. Finally, the branch line is passed over the trunk line, returned the length of the connector and pulled tight.

For further information write to Austin Powder Co., Dept. C&E, Rockefeller Bldg., Cleveland 13, Ohio, or use the Request Card at page 18. Circle No. 63.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.



Either a dump truck body or a service truck body may now be installed on the Jeep FC-150 chassis. The vehicle's forward control design is said to allow maximum usage of the 81-inch wheelbase for cargo space. Cargo length is 74½ inches or, with tail gate extended, 92 inches. Also available for use on the FC-150 are winches, snow plows, angle-dozers, and towing equipment. For further information about the FC-150, write to Willys Motors, Inc., Dept. C&E, 1505 N. Cove Blvd., Toledo 1, Ohio, or use the Request Card at page 18. Circle No. 73.

Every minute counts...

when
you're
paying
the
bills

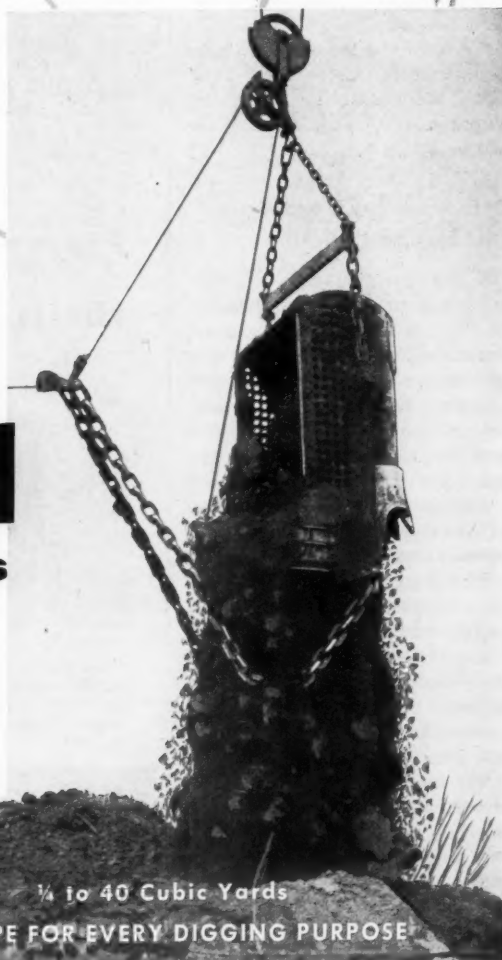
make every
digging cycle
count with...

"Full Capacity"

HENDRIX

DRAGLINE BUCKETS

- FILL FASTER
- HANDLE EASIER
- DUMP CLEANER



1/4 to 40 Cubic Yards

A TYPE FOR EVERY DIGGING PURPOSE

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

For more facts, use Request Card at page 18 and circle No. 262



New machine applies concrete pneumatically

The Aircreter, a new machine that pneumatically applies concrete and refractory materials, is offered by Engineered Equipment, Inc.

The Aircreter handles sand, aggregates, and refractory materials dry or up to 5-per-cent moisture content. According to the manufacturer, this unit places 1 to 6 cubic yards per hour or approximately 1½ cubic yards per 100 cfm of air. Special feed flow control makes it possible to adjust material flow, or to cut off material when free air is desired, with the pressure controlled by an air regulator.

The Aircreter is available in large models for production work and portable models for patching and repairing jobs.

For further information write to Engineered Equipment, Inc., Dept. C&E, 1001 Linden Ave., Waterloo, Iowa, or use the Request Card at page 18. Circle No. 145.

Offer new flash timing unit for safety lights

A new safety light flash timing unit is announced by the R. D. Fageol Co. Designated the Flasher Dependable-Pak, the unit is designed for use with the firm's 8-cell battery.

Uniform flashing rate is said to be assured by a new circular pendulum with precision factory-set point gap and stroke adjustments.

According to the manufacturer, design improvements in the heavy-duty, power-boosting transformer reduce battery drain for longer battery life, while providing added voltage output and greater flash brilliance.

The flash timer mechanism is shock-mounted on rubber, completely enclosed in a sealed heavy gage stamped steel case. Standard flashing rate is approximately 100 per minute.

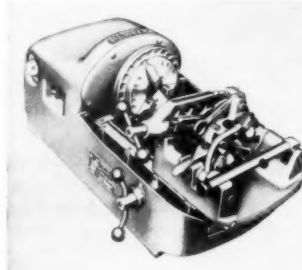
The indicators on the case socket and harness plug are designed to cut servicing time. These also eliminate the possibility of connector damage caused by incorrect alignment of the plug with the socket, the firm reports.

For further information write to R. D. Fageol Co., Dept. C&E, Box 328, Kent, Ohio, or use the Request Card that is bound in at page 18 of this issue. Circle No. 98.

Offer new, portable pipe and bolt machine

A new portable pipe and bolt machine, featuring a new Universal-type die head which has three sets of high-speed steel dies and threads from ½ to 2 inches, is offered by Beaver Pipe Tools, Inc.

The new Beaver S-4 Speed-O-Matic uses one Universal die head and three sets of duo-type dies: ½×¾-inch; 1×1¼-inch; and 1½×2-inch. Duo-type and mono-type die heads are also available.



Cutoff, die heads, and reamer are all pivot mounted and swing out of the way when not needed. A special

oiling tube directs cutting oil right to the threading dies. Oil shuts off automatically when the tube is moved out of position.

The Beaver power grip wrenchless chuck is standard equipment. It quickly gives a positive, safe grip to the work whether the machine is forward or reverse, according to the manufacturer.

For further information write to Beaver Pipe Tools, Inc., Dept. C&E, 325 Dana St. N. E., Warren, Ohio, or use the Request Card at page 18. Circle No. 104.



From coast to coast
thrift-minded owners report:

"Grade-beating, rock-speeding Payhauler gives us the decisive profit margin of difference!"

"The fast reverse of the '95' Payhauler is a big advantage on narrow, one-way haul roads—enabling our two units to keep the big shovel busy," states Howard Durbin, for Durbin Brothers, Eugene, Oregon. "Our other haulers with slow back-up could not do this!"



"Down switch-back grades as steep as 30%, the '65' Payhauler takes its loads—then climbs back out at fast speeds," declares Supt. Howard Eaton, for Funderburk Construction Co., Sutherlin, Oregon. "The best of the other haulers of this size just can't keep going on our tough Roberts Mountain haul road, like the '65' can!"



Two '95' Payhaulers... three 15-ton... with ease," says S... thonia, Ga. "With... delivery, the '95'... 30% on fuel!"

At 7,600 feet... '95' Payhauler... to build W... 4 operators vote... hand-operated d...

Prove an Int... ing speed! T... highball at... "pick-up tru... reverse and... the "big-targ... double-actin... brake contro... ure the big... your Intern... tor for a Pay...

"Our three... of shot rock... Warren Greer... The contractor... shot rock relo...

Contractors on the Dallas-Fort Worth Turnpike are experimenting with opaque, white film made of Bakelite polyethylene for curing concrete sections. Flexible, light in weight, and easy to install, the film is said to reflect sunlight, allowing less heat absorption than natural film, and to be highly resistant to moisture vapor penetration. On the Texas Turnpike, the Flenniken Construction Co. and the L. H. Lacey Co., both of Dallas, used Ger-Pak polyethylene film 20 feet wide and 0.004 inch thick. For further information about Ger-Pak polyethylene film, write to Gering Products, Inc., Dept. C&E, Monroe and Seventh Sts., Kenilworth, N.J., or use the Request Card at page 18. Circle No. 115.



Two '95' Payhauler trucks (24-ton capacity) replaced three 15-ton competitive haulers, and handle the operation with ease," says Supt. Henderson Hawkins, Stone Mountain Grit Co., Lithonia, Ga. "With unusually fast hoist, good balance, and speedier delivery, the '95's' reduce spotting and dumping time, also save 10% on fuel!"



At 7,600 feet altitude, a fleet of 4 turbocharged diesel-powered '95' Payhauler units help Morrison, Walsh & Perrini highball rock to build Wishon Dam—in Sierra National Forest, California. All 4 operators vote superior riding comfort, torqmatic braking safety, hand-operated dumping brake, as stand-out '95' advantages!

Prove an International Payhauler's production-boosting speed! The "95" is turbocharged diesel-powered to highball at 38 mph—the "65" at 36.4 mph! Try the "pick-up truck" spotting ease—using exclusive high reverse and "zip-around" power steering to position the "big-target" body, double-quick. Compare how the double-acting hydraulic hoist, under exclusive hand-brake control, gives 10-to-12-second dumping. Measure the big profit-building margin of difference—see your International Construction Equipment distributor for a Payhauler demonstration!

"Our three '65' Payhauler trucks move up to 2,000 cu yd of shot rock per 10 hours on a 1,200-foot delivery haul," states Warren Greer, for Greer Brothers and Young, London, Kentucky. The contractor is using these trucks to move 165,000 cu yd of shot rock relocating a section of U. S. 27 in Lincoln County, Ky.



On tough St. Lawrence Seaway—for United Waterways Constructors—11 '95' Payhauler trucks are sparking a demanding monthly production schedule of 120,000 cu yd of rock, and 100,000 cu yd of common earth. Next-to-automatic Payhauler control gives safe, capacity-adding speed over rough terrain!



"Engine power matches hauler capacity, to pull a 20-22 ton load from the quarry in second gear, over haul-road grades as steep as 15%," reports J. L. Sutherland, '65' Payhauler operator for Jefferson County Stone Company, Anchorage, Kentucky. "The Payhauler rides good, has excellent visibility, and maneuverability, shifts easy."



Satisfaction with two Payhauler trucks on one successful rock-moving contract prompted Clarkson Construction Co., Kansas City, Mo., to add three more "95's" to their fleet—to help handle a new, bigger contract. "Best production I've ever had," says Project Superintendent H. D. Brown.



**INTERNATIONAL
CONSTRUCTION
EQUIPMENT**

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE. Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

Power finishers feature reduction in height

Two new Lo-Boy cement finishers are announced by the Superior Cement Tool Corp. Identified as Lo-Boy Senior and Lo-Boy Junior, both models measure only 16½ inches from blades to top of engine.

Both units feature a new, completely enclosed transmission with self-contained clutch. Of planetary gear design, the new reduction unit has a 36 to 1 ratio. It is directly con-



The new Superior cement finishers measure 16½ inches from blade to top of engine

nected to the engine by a vertical, centralized, ball bearing-mounted shaft, and is said to be lubricated for life. All V-belts are eliminated.

Due to the transmission's high efficiency, a 4-hp engine on the Lo-Boy Senior produces more usable torque than former 7½-hp engines, according to the manufacturer. The latter model is equipped with a 44-inch ring. The Lo-Boy Junior uses a 2¾-hp engine and has a 35-inch ring.

Heavy, rigid cast steel blade-supporting arms on both models are surface ground and jig bored to insure easy interchangeability and positive blade parallelism. Individual leveling of blades and blade adjustments are no longer required and blade replacements can now be made in half the former time, the manufacturer reports.

For further information write to the Superior Cement Tool Corp., Dept. C&E, 11616 Wright Road, Lynwood, Calif., or use the Request Card at page 18. Circle No. 111.

←For more facts, circle No. 263



The Rogers Bros. detachable-gooseneck trailer mounts a hydraulic ram with a foot through which power is exerted to raise and lower the frame.

New gooseneck features helpful foot attachment

A new detachable-gooseneck trailer is announced by Rogers Bros. Corp. The gooseneck mounts a hydraulic ram with a foot through which power is exerted to raise and lower the frame for detaching the gooseneck and for the performing of other unusual operations.

Power is supplied by a pump operated by a power-takeoff or in trailers of smaller capacity by an electric motor powered by the truck battery. The operator faces the trailer as he handles all movements by means of a control lever on the gooseneck.

In addition to being capable of exceptionally fast detachment and re-attachment, which speeds up loading and unloading, the foot in contact with the ground makes possible new operations, according to the company.

The trailer can move with the front of the frame above the normal position to aid in clearing such obstacles as high-banked railroad crossings. With the frame below the usual traveling position additional clearance can be provided to pass high loads under overhead obstructions that would otherwise require detouring or unloading and reloading.

With the frame raised, blocking can be inserted under it to provide a fulcrum for raising the rear end of the trailer for easy changing of tires. And even with a load on the trailer it is possible to use the foot to lift the rear of the trailer to change tires, the manufacturer states.

Overhanging loads can be handled speedily by raising the trailer deck to permit insertion of blocking, then lowering the deck and withdrawing all of the trailer with the exception of the gooseneck.

For further information write to Rogers Bros. Corp., Dept. C&E, 108 Orchard St., Albion, Pa., or use the Request Card at page 18. Circle No. 12.

Sliding form eliminates curb face forms

A sliding form, said to eliminate entirely the need of curb face forms in pouring concrete for curbs and gutters, is announced by the Midwest Metal Stamping Co. Designed for continuous pouring of integral curb on



slab or curb and gutter, the form is of all-steel construction, and is 86 inches long and 27 inches wide.

Adjustable bolts on the cross ribs permit changing the angle of the face sheet to conform with the crown of the slab and the curb line. An angle running lengthwise at the back provides for the proper guiding of the sliding form on the 6-inch curb back form. The forms may be ordered to conform to any required profile.

Main supporting members and hopper are made of 1/4-inch-thick steel plate. The face member is 1/8-inch-thick plate, made in one piece to produce an entirely smooth and unbroken surface and electrically welded for maximum rigidity and durability.

For further information write to Midwest Metal Stamping Co., Dept. C&E, Kellogg, Iowa, or use the Request Card at page 18. Circle No. 57.

CONTRACTORS AND ENGINEERS

GET THIS PROFIT MAKING BOOKLET WITHOUT SPENDING A CENT!



New Vibro-Plus Publication Gives Complete Facts About VIBRATORY COMPACTION . . . Helps You Earn More Substantial Profits on Every Compaction Job!

Most construction people are familiar with the almost fantastic cost-cutting possibilities offered by vibratory compaction and the equally fantastic job that can be done. For those who want to know the complete story, Vibro-Plus offers this comprehensive booklet explaining Terrapac compaction.

Vibratory compaction is here to stay —

it is being approved by more and more highway departments and used by many contractors . . . Inplace costs as low as 1.7 and 2 cents a yard have been reached by the time-proven Terrapac vibratory rollers.

For your free booklet, write on your own letterhead to: Vibro-Plus Products, Inc., Stanhope, New Jersey.

AD NO. 41-37



VIBRO-PLUS PRODUCTS, INC.
STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES!

For more facts, use Request Card at page 18 and circle No. 264

An improved type of controlled differential steering for all TerraTrac crawler tractor models with standard-shift transmissions is announced by the J. I. Case Co. The new steering system is said to give greater maneuverability and easier handling, yet keeps power and traction on both tracks while turning. Increased leverage, plus a new heavy-duty brake drum with heavier brake band and lining, reportedly enables the operator to make sharper, almost effortless turns without clutching. The improved steering is standard equipment on current production models of the Case TerraTrac 320, 400, and 500 crawlers. For further information, write to J. I. Case Co., Dept. C&E, Racine, Wis., or use the Request Card at page 18. Circle No. 46.



Portable drill stand cuts operator fatigue

A new portable drill stand consisting of base, column with screw extension, gear and rack feed is announced by the Truco Swivel Division of The Wheel Trueing Tool Co.

It is designed especially for use with the company's Truco hand-swivel drill motor in diamond drilling. The combination is said to provide a unit of wide utility for contractors and maintenance crews



whose work requires drilling of multiple holes up to 3½ inches outside diameter.

The stand permits vertical holes to be drilled while the operator's weight anchors the unit in position. It can be anchored to the floor or braced to the ceiling with the column screw for faster drilling and for less operator fatigue. It can also be braced between walls or can be anchored directly to the wall when horizontal holes are drilled.

Lightweight components and quick, easy assembly permit this stand and the combination to be handled easily by one man, according to the manufacturer.

For further information write to The Wheel Trueing Tool Co., Water Swivel Div., Dept. C&E, 3200-53 W. Davison Ave., Detroit 38, Mich., or use the Request Card at page 18. Circle No. 23.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.



LOOK! A Dozen Erecting Problems ... And H-5 Hydrocrane Solves Them All

PROBLEM	HYDROCRANE'S SOLUTION	
1. Travel time between jobs...	Up to 50 mph travel speeds	9. Inexperienced operator.....Clearly marked hand levers — no foot brakes
2. Frequent setups	Hydraulic outriggers that set in seconds	10. Work on rough, irregular terrainHydraulic outriggers level automatically
3. High lifts	Boom lengths to 70 feet (Optional with jib)	11. Require fast line speeds....New selector valve doubles line speeds
4. Close quarter work.....	Shortest tail swing in its class	12. DowntimeSimplicity of design cuts costly maintenance
5. Frequent boom angle changes	Working boom hoist	
6. Lift heavy loads.....	New 10-ton capacity	
7. Reach into buildings.....	Telescoping boom	
8. Reduce damage	Hydraulic precision control	

Yes, the Hydrocrane is the only crane-excavator that does so many jobs so well. Mounted on a new or low-cost used truck, the 10-ton H-5 Hydrocrane is the erecting crane that returns more profit per dollar invested than any other machine in its class. Your Bucyrus-Erie distributor will be pleased to present the whole Hydrocrane story.

207H57



BUCYRUS-ERIE COMPANY

SOUTH MILWAUKEE, WISCONSIN

For more facts, use Request Card at page 18 and circle No. 265



A new addition to the Lorain line of power cranes is the Model SP-425, a 25-ton self-propelled unit featuring high maneuverability with one-man operation.

New 25-ton crane has one-man operation

A new 25-ton self-propelled Lorain crane is announced by the Thew Shovel Co. Designated Model SP-425, the unit needs but one man for operation; all controls for carrier as well as turntable operations are located at the operator's position in the cab.

The newly designed cab on the SP-425 is larger for increased operator comfort and provides for maximum visibility.

Standard equipment on the SP-425

includes Shear-Ball mounting, said to eliminate all types of turntable rollers, center pins and centering gudgeons; and a 30-foot, pin-connected crane boom of alloy steel of the new Lorain square-tubular-chord design for increased lifting capacities and longer ranges at reduced weight.

Available are Lorain's 2-lever, "joy stick" controls for air-power operation of all turntable clutch operations.

Air controls of the carrier for maximum maneuverability and reduced operator effort provide automotive-type air-power steering; air brakes; air-assist travel; air shift on travel-selector; and air shift of travel gears.

Available also is torque converter power take-off, said to provide a highly efficient and smooth application of engine power to turntable operations. According to the manufacturer, the converter adjusts automatically to the loads or operating needs of the machine and the engine cannot be stalled.

Throttle control of load lowering provides a high degree of precision control and variable speeds in the raising and lowering of crane loads. The rear counterweight is said to be easily and quickly detached for over-the-highway travel.

The 6x4 carrier has a heavy-duty, spring-mounted dead front axle of tubular design which provides for non-scaff, dual front wheels of the differential type. It has 4 travel speeds in both directions.

For further information write to The Thew Shovel Co., Dept. C&E, 28th and Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 99.

Offer retreads for worn tractor grouser shoes

A new complete line of tractor grouser retreads for rebuilding the grouser shoes of crawler-type equipment is announced by Allied Steel & Tractor Products, Inc. Using Bulldog tractor Grip-Lugs, equipment can be re-lugged without dismantling.

The lugs are designed with an engineered groove and bevel, permitting a welding application that is faster and less expensive than using original parts, according to the manufacturer. AWS E-6016 or E-7016 low hydrogen electrodes can be used.

Shapes and sizes reportedly are available to fit any track-laying or crawler-type equipment. Supplied in 10-foot lengths, Grip-Lugs are also available cut to length, ready to weld.

For further information write to Allied Steel & Tractor Products, Inc., Dept. C&E, 7835 Broadway, Cleveland 5, Ohio, or use the Request Card at page 18. Circle No. 17.

For more data on any item, circle indicated number on card at page 18.

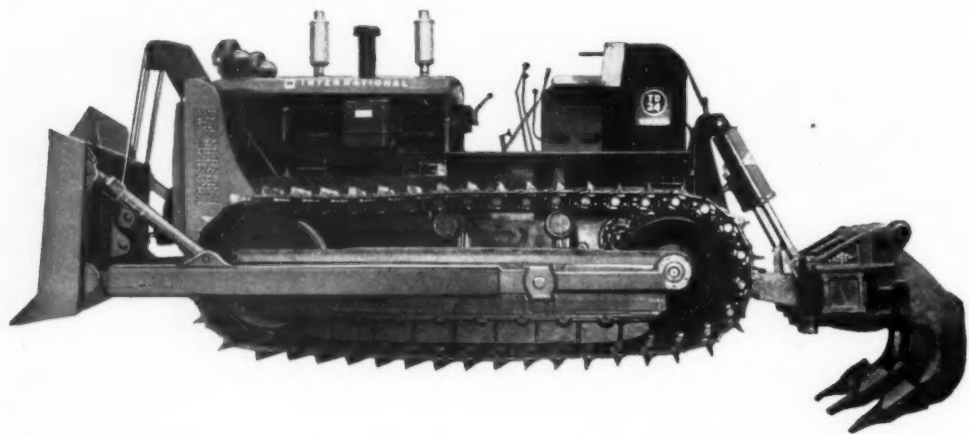
CONTRACTORS AND ENGINEERS

HERE'S HOW TO MOVE MORE EARTH AT LESS COST



ATECO 4-wheel scrapers get heaping loads quickly. Loading and ejection are positive. High road clearances and elimination of overhead structures and dead-weight auxiliary frames cut tractor wear. Center of gravity is

lower—stability is increased. Initial cost is low. See your IH dealer or write us for details on scrapers from 6 to 10 cubic yard capacity.



Many contractors are moving rock at dirt prices by preparing the area with the tractor-mounted Greenville Rock Ripper. This big unit rips rock, frozen earth, and other tough materials to depths of 24". The shanks swivel 30°. This swivel action, combined with the special shank contour, exerts a live, prying action that

wedges into and splits rock like a jackhammer. Ripper is always in position while the tractor remains free for bulldozing and pushloading when needed. Greenville rippers are available for IH TD-14, TD-18, and TD-24 tractors. See your IH dealer or write to us.



GREENVILLE

STEEL CAR COMPANY

ATECO DIVISION
Greenville, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 266

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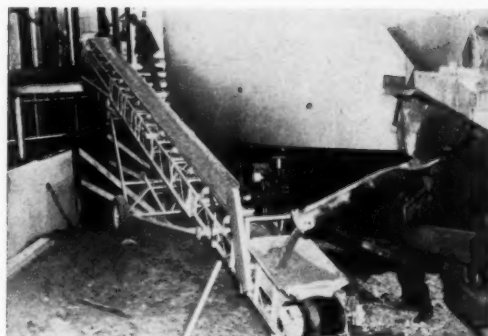
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No. 53.

The problem of placing concrete in a confined area was solved recently through use of a Faircrete conveyor, Phillip A. Lough, a Memphis contractor, reports. The wall being poured ran 50 feet straight back between the large storage tank on the right and the rack of pipe visible just below the head of the conveyor. The conveyor was rolled as close as possible to the forms, then chuted directly into them. Mr. Lough pointed out that the trough belt conveyor, with its ability to move material from the transit mix truck directly to the forms at rates up to 40 yards an hour, provided an ideal answer to this and many other concrete placement problems. For further information about the Faircrete conveyor, write to **The Fairfield Engineering Co.**, Dept. C&E, 324 Barnhart St., Marion, Ohio, or use the Request Card at page 18. Circle No. 92.



Maximum arc stability claimed for new welder

A new rectifier type dc welder is announced by the Miller Electric Mfg. Co. Featuring a new transformer, weld stabilized circuit, and completely sealed semi-metallic rec-



tifier, the Gold Star SR is said to deliver maximum arc stability for greater metal deposition with all electrodes in all positions. The manufacturer also claims that this machine has a higher short-circuiting current which makes it possible to "pinch the arc" in vertical and overhead welding.

All Miller SR series welders—the 200, 300, 400, 600 and Duplex models—are now available only in the Gold Star series.

For further information write to Miller Electric Mfg. Co., Inc., Dept. C&E, 718 S. Bounds St., Appleton, Wis., or use the Request Card at page 18. Circle No. 150.

Offer winch kit for installing on trucks

A winch kit designed especially for front-end installation on any GMC Series 100 4-wheel or 2-wheel drive chassis is announced by the Braden Winch Co.

The LU2-3 kit consists of Braden's 8,000-pound-capacity LU2 winch with all necessary mounting and driving parts. Installation is said to be easy.

For further information write to Braden Winch Co., Dept. C&E, P. O. Box 547, Broken Arrow, Okla., or use the Request Card at page 18. Circle No. 53.

For more facts, circle No. 267→

MORE WORK-ABILITY WITH THESE NEW "Euc" REAR-DUMPS

for construction, mine,
quarry and industrial work

With overhung engine type tractors and full 90° hydraulic steering, these two new Euclid Rear-Dumps have excellent maneuverability for close quarter work and accurate spotting at loading and dumping areas. Big tires provide extra traction and flotation for soft fills and difficult hauls. The low over-all loading heights and rugged construction permit easy loading with all types of equipment. Smooth bodies with 3-stage, double-acting Euclid hoists assure quick shedding of loads.

Downtime and maintenance costs are held to a minimum as a result of the easy service accessibility of all major components. Interchangeability of the semi-trailer rear dump bodies with 7 and 18 yard scraper bowls provides extra flexibility for changing job requirements.

Your Euclid Dealer has detailed information on these versatile "Eucs" as well as other Rear and Bottom-Dump models, Scrapers and Crawler Tractors... have him show you why **Euclids are your best investment.**

EUCLID DIVISION, GENERAL MOTORS CORPORATION, Cleveland 17, Ohio



THE
S-7

REAR-DUMP

12 tons payload...
11 cu. yds. heaped...
143 h.p. ...
18.00x25 tires... top speed
loaded of 26.5 mph...
Torqmatic Drive.

AND THE

S-18

REAR-DUMP

35 tons payload...
32 cu. yds. heaped...
300 h.p. ... 27.00 x 33 tires
Torqmatic Drive.



Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE





This Con-Vay-It "T" unit is designed for small tunnel work, truck loading and unloading, and stockpiling.

Belt conveyor unit handy in restricted operations

A troughed belt conveyor unit for abrasive or bulk materials is available from the American Conveyor Co. Designated the Con-Vay-It "T", the unit is designed to handle earth, sand, gravel, rubble, and other similar materials. It is recommended for small tunnel work, truck loading and unloading, and stockpiling.

The small boom cross-sectional area is said to permit passage through restricted openings. Standard power mounting is at the conveyor foot end

for weight balance. Head end power mounting is available, if desired.

Standard lengths of 20, 30, and 40 feet with electric motor or gasoline engine power and High-Boy elevating frame are said to provide flexibility of application.

For further information write to American Conveyor Co., Dept. C&E, 2133-37 S. Christiana Ave., Chicago 23, Ill., or use the Request Card that is bound in page 18. Circle No. 48.

CUT LOADING TIME!
WITH NEW HENDERSON
CHIEF
LOADERS
LEAD THE FIELD
 with "5th Cylinder"
 Automatic Hydraulic
 Bucket Leveler

**Greater Pay Load—
 Faster Lift
 and Dump**

**Hydraulic Loaders for Contractors, Utility
 and Industrial Firms, Cities, Farmers . . .**

Saves time . . . Saves money — more work hours per dollar invested. Rugged box-frame construction. Most advanced cylinder design. Chromed rods throughout. Powerful 12 gpm hydraulic system with built-in oil reservoir. Complete line of attachments available.

Fits these Utility Tractors: Case 300 and 310; Oliver 55 and Super 55; IHC 300 and 350; M-M 335 and 445; Ford 640 and 860; Ferguson TO-35 and 40; M-H 50; John Deere 420 U; A-C D14 and others.

Sales and Service from Coast to Coast
HENDERSON MFG. CO., Inc.
 Dept. C&E-857 Cedar Rapids, Iowa

For more facts, circle No. 268



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MULLER MACHINES

**cost less
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 and produce more**

Low-price, low maintenance cost and high output are combined in Muller Machines. Three major factors contribute to these qualities—seasoned experience (fifty years), specialization, and careful selection of materials and parts.

Ask for prices and name of local dealer.
MULLER MACHINERY COMPANY, INC.
 Metuchen 15, N. J. Cable Address: MULMIX

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MODERN HEAVY-DUTY DIESEL ENGINES for CONTRACTORS' EQUIPMENT

and marine applications



instant starting . . . reliable . . . economical

WORLD-WIDE SERVICE supporting
 more than 1,000,000 engine sales

IMMEDIATE DELIVERY on smaller
 engines and generating sets

PETTER DIESEL ENGINES
 DIV. OF BRUSH ABOE, INC.
 60-07 39th AVE., WOODSIDE, N. Y. DEfender 5-7100

For more facts, circle No. 271

Offer plastic pipe to 6-inch diameter

Polyethylene plastic pipe in diameters of 1/2 to 6 inches is announced by the Evanite Plastic Co., a division of the Evans Pipe Co. The pipe is manufactured in Schedule 40 standard wall and 75-pound working pressure types.

Smaller-diameter pipe is available in coils from 100 to 400 feet. The 4 and 6-inch sizes come in 24-foot straight sections. A full line of hard plastic insert and adapter fittings that require no thread cutting or cementing is also available.

The pipe may be quickly installed, can be cut with a knife or hacksaw, and is flexible enough to bend around obstructions.

According to the manufacturer, Evanite polyethylene pipe is lightweight, resists corrosion, produces low friction loss, is not harmed by sunlight or age, and is non-contaminating to fluids. It reportedly will not split or lose flexibility at temperatures to minus 70 degrees.

For further information write to Evanite Plastic Co., Div. of Evans Pipe Co., Dept. C&E, 23 Newport Ave., Uhrichsville, Ohio, or use the Request Card that is bound in at page 18. Circle No. 21.

New clutch arrangement for off-highway units

A new clutch arrangement for use in heavy-duty and off-highway type machines is offered by the Rockford Clutch Division of the Borg-Warner Corp.

According to the manufacturer, the Morlife clutch, using friction material with a ceramic base, produces increased capacity, better heat disposal, better ventilation, cooler running, no fading, longer wear, fewer adjustments, and more usable lining material.

The Morlife clutch is available in both over-center and spring-loaded types in a wide range of sizes up to 18 inches, single and double plate.

For further information write to Rockford Clutch Div., Borg-Warner Corp., Dept. C&E, 202 Catherine St., Rockford, Ill., or use the Request Card at page 18. Circle No. 65.

CONTRACTORS AND ENGINEERS



A scraper built for use with the Caterpillar D2 and D4 tractors is announced by the Gurries Mfg. Co. Designated the GS-2 Ag scraper, the new unit has a 3.6-cubic-yard struck capacity and a heaped capacity of 5 cubic yards. A hydraulic cylinder raises and lowers the bowl, and the machine has a shallow angle blade designed to cut draft and permit taking on of a heaped load with minimum power. Hydraulic power which raises the apron is said to afford a quick and complete dump. The load can be spread in thin, controlled layers, if desired. The unit's rear wheels track inside its 7-foot cut. For further information about the GS-2 scraper, write to the Gurries Mfg. Co., Dept. C&E, 1720 S. First St., San Jose, Calif., or use the Request Card at page 18. Circle No. 3.

For more data on any item, circle indicated number on card at page 18.

New portable flasher is easily recharged

A portable flasher designed to control traffic while highway repair work is in progress is announced by the Eastman Co.

The new flasher, called the Save-A-Life, is said to be ready at any instant for emergency barricading. It has a flashing light, either red or amber, to slow down or stop traffic in areas where construction work is under way.

Powering the flasher is a 6-volt storage battery that can operate con-



tinuously for approximately 130 hours. The unit has a light intensity of 210 lumens, which is clearly visible even when viewed against the sun, according to the manufacturer.

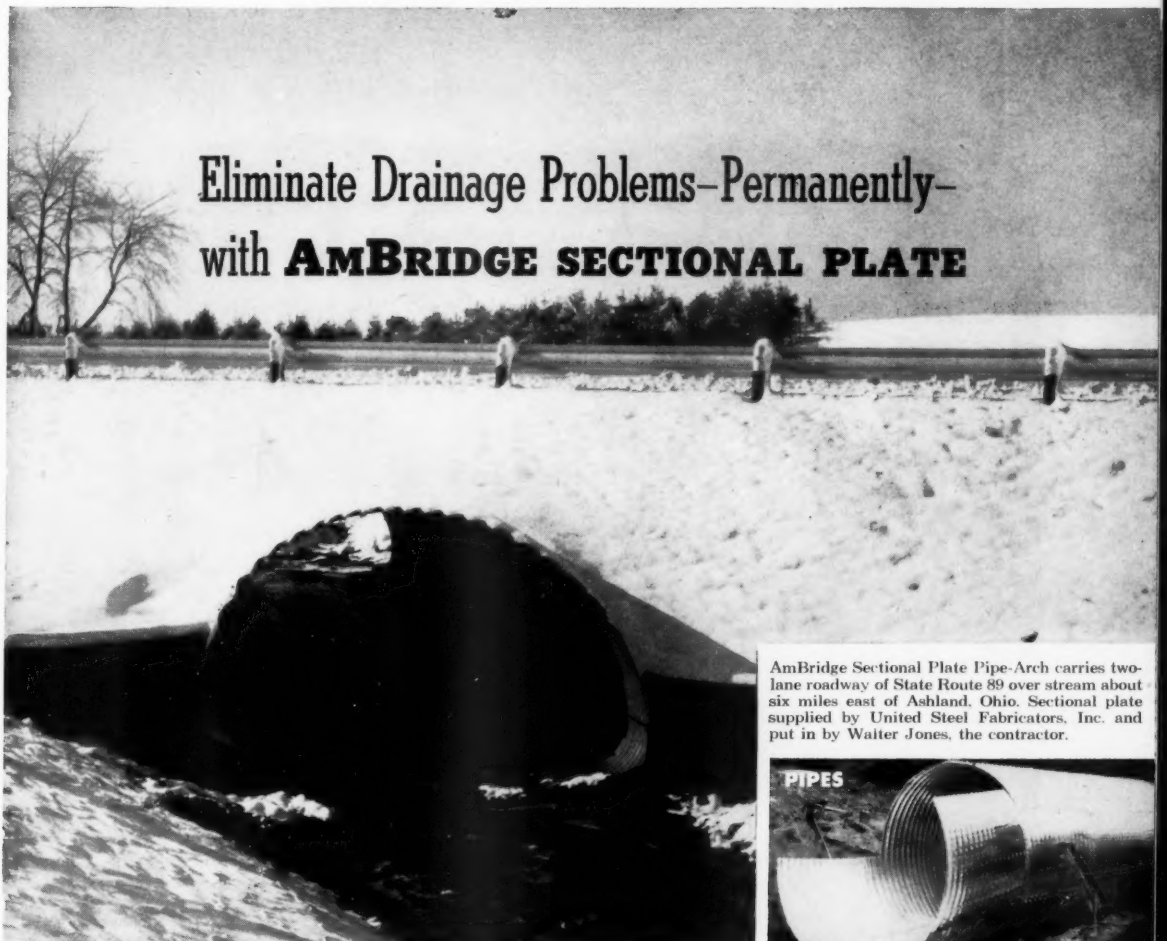
The battery can be recharged by plugging a self-contained cord into any 110-volt ac 60-cycle power. The built-in charging mechanism is fully automatic. The timing mechanism, battery, and other regulating equipment are contained in a tamper-proof box, and the operating switch is of the key-lock type.

The 6-inch wheels are equipped with semi-pneumatic tires and ball bearings. The red or amber lens, visible from two directions, conforms to National Emergency Vehicle specifications.

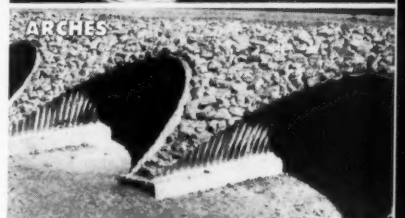
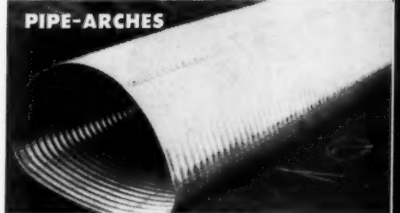
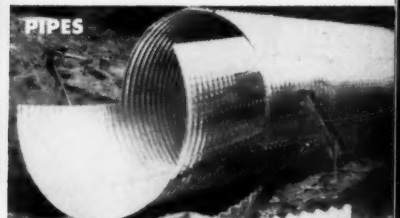
For further information write to Save-A-Life Signal Co., Dept. C&E, 929 35th St., Des Moines, Iowa, or use the Request Card at page 18. Circle No. 55.

For more facts, circle No. 272-

Eliminate Drainage Problems—Permanently— with **AMBRIDGE SECTIONAL PLATE**



AmBridge Sectional Plate Pipe-Arch carries two-lane roadway of State Route 89 over stream about six miles east of Ashland, Ohio. Sectional plate supplied by United Steel Fabricators, Inc. and put in by Walter Jones, the contractor.



USS AmBridge Sectional Plate Pipe, Pipe-Arches, and Arches are available in a complete range of standard sizes to satisfy the design requirements for any waterway opening. They are fabricated to meet all federal and state specifications.

These strong, flexible structures with their 6" x 2" corrugations can resist extremely large externally applied loads.

Special details such as asphalt

coating, hook bolts for concrete headwalls, beveled ends, and skewed ends are furnished as specified for each job. These structures are economical (they eliminate the need for forms . . . and, being made of steel, there is no breakage). They are permanent (they can be extended whenever a fill or road is widened). They go in quickly with a minimum interruption of traffic.

For Culverts Made with USS Galvanized Corrugated Sheets

For your smaller drainage structures, culverts made from USS Galvanized Corrugated Culverts Sheets are available. For the names of firms making these top-quality culverts, write to United States Steel Corporation, Room 2801, 525 William Penn Place, Pittsburgh 30, Pa.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION
General Offices: 525 William Penn Place, Pittsburgh, Pa.

Contracting offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • ELMIRA • GARY • HOUSTON • LOS ANGELES • MEMPHIS • MINNEAPOLIS • NEW YORK • ORANGE, TEXAS • PHILADELPHIA • PITTSBURGH • PORTLAND, ORE. • ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AMBRIDGE SECTIONAL PLATE



7-829

UNITED STATES STEEL

NEW CATALOG NOW READY

Containing complete information on AmBridge Sectional Plate Pipe, Pipe-Arches, and Arches. Our new 28-page catalog covers design, sizes, weights, gages and assembly instructions. For free copy, just write our nearest office.



This Rocket mixer derives its power from the truck engine crankshaft by a V-belt drive with optional air or electric clutch.

Truck mixer features front-engine drive

A Rocket truck mixer with front-engine drive is announced by the Concrete Transport Mixer Co.

The mixer gets its power from the truck engine crankshaft by a V-belt drive with optional air or electric clutch. This power is transferred to the 4-speed transmission, which has 3 forward speeds and 3 reverse speeds; and then to a standard reducer through the use of multiple

drive shafts and universal joints.

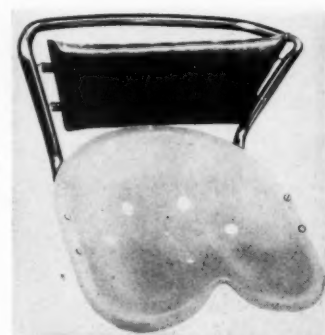
According to the manufacturer, the unit may be mounted on all trucks. Included among its many accessories is an optional air water system for trucks equipped with full air.

For further information write to Concrete Transport Mixer Co., Dept. C&E, 4985 Fyler Ave., St. Louis 9, Mo., or use the Request Card at page 18. Circle No. 59.

Tractor seat back-rest features safety, comfort

A new back-rest for tractor seats is offered by the C. S. Ohm Mfg. Co. Called the Saf-T-Bak, the back-rest is made of welded steel tubing, with tempered steel springs suspending two metal back plates that support the back-rest pad.

The pad is upholstered with an inch of rubberized hair and covered with water proof weather-resistant vinyl. It adjusts automatically to fit



the tractor operator of any weight or size, according to the manufacturer. The coil springs provide support and also permit the unit to yield under severe thrust—a safety factor which reduces danger from quick starts and stops.

Engineered to minimize operator fatigue, the device is fastened to and rides with the seat pan. This feature enables the operator to maintain an alert, erect position without leaning back for support, thus alleviating chafing and stiffness, the manufacturer reports.

The Saf-T-Bak comes in two sizes—Model K for bucket seats approximately 18 inches between centers of curl on sides of the seat, and Model O for bucket seats approximately 20 inches wide.

For further information write to the C. S. Ohm Mfg. Co., Dept. C&E, 24075 Hoover Road, Van Dyke, Mich., or use the Request Card at page 18. Circle No. 107.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.

WICKWIRE DOUBLE GRAY

is the wire rope that's...

- extra strong
- field proved
- crush and abrasion resistant

Compare Wickwire Double Gray IWRC Wire Rope with the improved plow steel IWRC ropes you're probably using now. You'll see that Double Gray has a rated breaking strength that's 15% greater than the catalog breaking strength of these ropes. And it resists crushing and abrasion better, too. That's because Double Gray is made of *extra* improved plow steel—a new type of rope steel that's being widely praised for its superior strength and toughness.

Yet Wickwire Double Gray Wire Rope gives you even more! Because its makers have long been known for the care with which they make and test their ropes, you know you're getting a safe rope. Like all other Wickwire Ropes, *Double Gray* was *thoroughly tested both in the laboratory and the field before it was offered to the trade!*

Get the complete story today on how you can best use the extra strength and toughness of Wickwire Double Gray Wire Rope in your operations.

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso • Farmington (N. M.) • Fort Worth • Houston • Kansas City • Lincoln (Neb.) • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Tulsa • Wichita

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LOOK FOR THE YELLOW TRIANGLE

For more facts, use Request Card at page 18 and circle No. 273



Concrete vibrator has only two moving parts

Its type AP pneumatic concrete vibrator, consisting of only two moving parts, is announced by Vibro-Plus Products, Inc. A built-in, pneumatically driven vibrating element eliminates the need for separate air motor, transmission, and bearings. This simplified design is said to assure low maintenance cost, virtually no downtime, and long working life.

The AP line consists of three head



sizes, ranging from 2 3/8 inches to 3 inches. The small size and low weight

make this concrete vibrator easy to handle and especially suited for confined working areas such as tunnels. The vibrator can be inserted in the concrete all the way up to the air exhaust.

The double-wall rubber hose connected to the vibrator tube is made of heavily reinforced, durable, oil-resistant material.

For further information write to Vibro-Plus Products, Inc., Dept. C&E, Stanhope, N. J., or use the Request Card at page 18. Circle No. 148.

Cylindrical calculator is introduced in U. S.

A highly accurate cylindrical calculator is announced by the Arthur F. Smith Co. Reportedly introduced for the first time in this country, the new calculator, by spiraling the scales around a tube instead of in a straight line, is said to achieve graduations equal to those of a 66-inch slide rule.

The cylindrical calculator may be used to solve all problems involving multiplication, division, proportion, percentages, logarithms, roots, and powers. The plastic covered scales are fully resistant to wear and moisture, and since the instrument is made of metal throughout, the possibility of warping or distortion is eliminated.

Though the instrument can be opened to 10 1/4 x 1 1/4 inches, its dimensions when closed are a pocket-sized 6 x 1 1/4 inches.

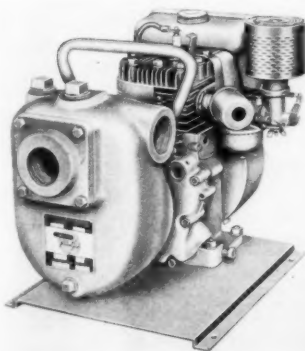
For further information write to Arthur F. Smith Co., Dept. C&E, 311 Alexander St., Rochester, N. Y., or use the Request Card at page 18. Circle No. 143.

Portable pump features 4-volute cut-off design

A new self-priming, portable pump is announced by the Lancaster Pump & Mfg. Co. The pump features a four-volute cut-off design, said to yield extra high capacities in the high pressure range without overloading the 2-hp 4-cycle gasoline engine.

Other features include a grease lubricating seal, built-in check valve, steel base, and a carrying handle and strainer.

For further information write to the Lancaster Pump & Mfg. Co., Dept. C&E, P. O. Box 778, Lancaster, Pa., or use the Request Card at page 18. Circle No. 109.



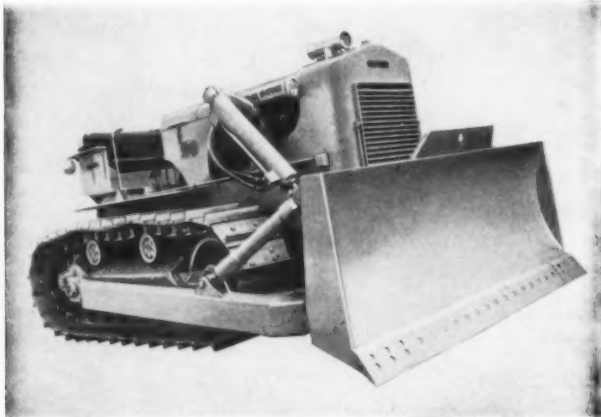
Reflecting concrete curbing made with ATLAS® WHITE Cement provides all-weather, 24-hour visibility

- Concrete curbs made with Atlas White Cement trace road's course well ahead of driver.
- In daylight, white curbing contrasts with darker pavement of highway.
- At night, saw-tooth surfaces reflect headlight rays back to driver. And on rainy nights, the wet curb surfaces become even more reflective.

For more information on Atlas White Cement's contributions to highway safety, write: Universal Atlas, 100 Park Avenue, New York 17, N. Y.



UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—**UNITED STATES STEEL**
OFFICES: Albany • Birmingham • Boston • Chicago • Dayton • Kansas City • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • St. Louis • Waco
 For more facts, use Request Card at page 18 and circle No. 214



New dozer is mounted on tractor engine frame

Its 133-drawbar-horsepower Model OC-18 tractor is available with a new engine-frame-mounted bulldozer. The Oliver Corp. announces.

A strong, simple hookup arrangement is used to anchor the hydraulic cylinders to the engine frame on both sides. Heavy box-section push arms pivot on the track frame and have a far-back mounting point, permit-

The Oliver OC-18 tractor is available with a new engine-frame-mounted bulldozer.

ting the blade to lift 47 3/4 inches above the ground.

The dozer blade has a drop below ground of 1 1/4 inches for an over-all blade travel of 62 inches. Blade action is said to be fast, with a 4-second lift time.

The 10-foot 10-inch-wide blade has reversible cutting edge and end bits and can adjust to a 14 1/2-inch maximum tilt. The over-all length of the OC-18 with the blade set straight is 17 feet 11 inches.

The OC-18 with engine-frame-mounted bulldozer has Oliver Power-Turn steering which, the manufacturer states, gives it unusual advantages in all dozing operations. Clutch steering is integrated into Power-Turn to permit spot turns by locking of the pivot track. For gradual turns, there is power on both tracks at all times. Another feature said to contribute to top dozing performance is the instant speed reduction made possible by Power-Turn planetary reduction drive.

In extra-tough going, a quick pull of the two Power-Turn controls provides a speed decrease of 38 per cent and an increase in drawbar pull of up to 60 per cent, depending upon weight and traction, according to the manufacturer. It is not necessary for the operator to touch the master clutch control.

For further information write to The Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 9.

Automatic start-stop systems for diesels

Automatic start-stop systems for four more diesel engine models are announced by Caterpillar Tractor Co. The new start-stop systems, which are available as attachments, are designed for use on the Caterpillar D326 (Series F), D337 (Series F), D375 (Series D), and D397 (Series D) diesel engines.

With principal application on electric set installations, the automatic start-stop systems are said to crank instantaneously the diesel engine when utility power fails.

When the generator comes up to 90 per cent of rated voltage, an automatic transfer switch changes the load from the utility source to the electric set. The transfer switch reverses the load to the utility line and shuts down the electric set when utility power is restored.

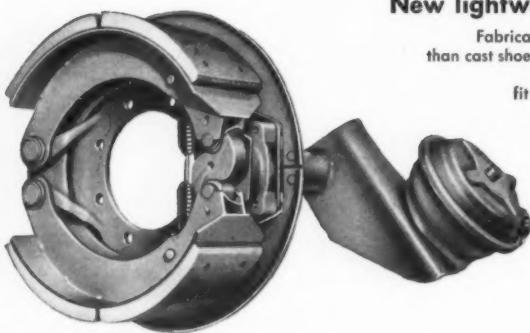
Automatic start-stop can also be applied when electric sets assist utility power plants during peak load periods. The automatic start-stop systems can be used on pumping installations, where pressure or volume control is critical, but where full-time operation of the pump is not necessary.

For further information write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 58.

CONTRACTORS AND ENGINEERS

TDA® BRAKES

if it moves... we can stop it



New lightweight . . .

Fabricated steel brake shoes weigh many pounds less than cast shoes. Binding or freezing up is eliminated because double web construction permits limited area fit with one piece cam rollers. Wear areas of the webs are heat treated for long life.

Unit-mounted . . .

All brake parts are mounted on the spider for compactness. Efficiency is higher and correct cam shaft alignment is assured with close coupled cam shaft and chamber bracket.*

"P" SERIES POWER BRAKES

designed for heavy-duty automotive service

Here is a brake that gives longer, trouble-free service for trucks, trailers, and all types of industrial and road equipment. These heavy-duty "P" Series Brakes are easy to maintain in service. Simplicity of design is the keynote—with brake, air chamber, and cam shaft all mounted as a unit.

The outstanding features of the Timken-Detroit® "P" Series Brakes give increased economy and performance. Operating temperatures are lower and lining life longer because open-type spiders assure good internal ventilation and rapid cooling. Timken® "Econo-liners" are tapered to provide greatest thick-

ness where greatest lining wear normally occurs.

A constant-lift "S" type cam assures uniform application of brake shoes for maximum control and immediate response. Brake adjustments are quick with easily accessible slack-adjusters. Long wearing nylon bushings assure smooth operation with minimum maintenance.

"P" Series Power Brakes are available in a complete range of capacities and sizes to fit every operating requirement.

*"P" Series Brakes are also available with inboard chamber mounting for special applications.

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For every industrial, agricultural or automotive application where braking is required!
TDA plants at: Detroit, Michigan • Oshkosh, Wisconsin • Utica, New York
Ashtabula, Kenton and Newark, Ohio • New Castle, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 275

Timken-Detroit Brake Division
Rockwell Spring & Axle Company
Dept. CE-87 Ashtabula, Ohio

CE-87

Please send me further information on your "P" Series Brake.

Name _____ POSITION _____

Company _____

Address _____

City _____ State _____

Tandem axle trailer dump gets increased payloads

A new 30-cubic-yard tandem axle trailer dump, designed for materials hauling in areas where highway weight limit laws set a medium gross weight limit and allow credit for only one set of tandem axles, is announced by the Gallon Allsteel Body Co.

Designated the Model STMF Transporter, the new trailer dump is intended for use with single rear axle tractors. It is fitted with a front-mounted Uni-scope single cylinder telescopic hoist which shifts hoist weight forward onto the tractor axles. This permits additional loading of the trailer axles and increased payloads, the manufacturer states.

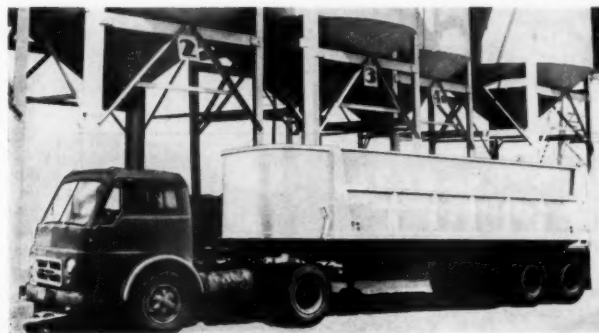
Matched design of Uni-scope hoist, chassis and body is said to afford maximum stability, both on the highway and when dumping. The Model STMF can be used for direct dumping into road-surfacing machines.

The chassis, of fabricated steel construction, is supplied with tandem Stabl-ride or center pivot bridge type suspension. A full selection of axle capacities, brake types, tires, and optional equipment is offered. Understructure consists of closely spaced 4-inch channel crossmembers gusseted and welded to 6-inch I-beam longitudinals.

The compact hoist well, fully welded and reinforced to distribute hoist-lifting forces uniformly, is fitted with a removable access cover for hoist cylinder inspection. Tengage high-resistant steel is used throughout the body.

Offered in body lengths from 19 to 26 feet, Model STMF Transporters have payload capacities of 10 to 40 cubic yards. Three optional Uni-scope hoists, with lifting capacities up to 30 tons, are available.

For further information write to Gallon Allsteel Body Co., Dept. C&E, Gallon, Ohio, or use the Request Card at page 18. Circle No. 96.



This Gallon Model STMF Transporter has a 26-foot trailer dump, with Uni-scope hoist and a 30-cubic-yard capacity body.



Speeds through brittle fibre pipe slick as a whistle!

Rugged B&D Heavy-Duty Jig Saw zips through jobs!

POWER-BUILT design to make your installations easier!

Designed for the toughest jobs, the versatile Black & Decker Heavy-Duty Jig Saw is powered to save you muscle and manhours. Combines a sabre, rip, crosscut, coping, hand, hack and keyhole saw in one hand-fitting tool. Makes curved, straight or irregular cuts—pocket cuts in floors, baseboards and panels. Full 1" stroke ... cuts to a 45° angle on either side.

Heavy-Duty, B&D-built motor won't stall, runs cool, without vibration. Heavy-duty shoe won't wobble or distort. See your B&D distributor for a free demonstration—you'll wonder how you ever did without one! Or, for full details, write: THE BLACK & DECKER MFG. Co., Dept. 1308, Towson 4, Maryland. (In Canada: P. O. Box 278, Brockville, Ont.)



Leading Distributors Everywhere Sell



Black & Decker®

Quality Electric Tools—Power-Built to Last



DRILLS



BENCH GRINDERS



SANDERS



SHEARS



Slices through sheet metal like a knife through butter.



Cuts neat, clean holes in wood: 1" hardwood; 2" in soft.

Makes pocket cuts quick and easy.



Swiftly Service says: Give your B&D Tools local B&D Factory Branch Service.



Utility compartments replace truck fenders

Utility compartments for mounting on all makes of 1/2, 3/4, and 1-ton pick-ups are available from Auto Body Works, Inc. The compartments are designed to fasten to the pick-up box after the fenders are removed.

Ease of installation is one of the features claimed by the manufacturer, with a total of 10 bolts required for the conversion.

The compartments are said to be roomy, convenient, and ruggedly constructed.

For further information write to Auto Body Works, Inc., Dept. C&E, 315 S. Pierce Ave., Appleton, Wis., or use the Request Card at page 18. Circle No. 60.

For more facts, circle No. 276—

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

SWENSON SPREADERS FOR ICE CONTROL

**SPREADS SALT 200 LBS. PER MILE
OR IN ANY DESIRED AMOUNT**
Lays a Narrow Strip or Full Traffic Lane
Handles all granular materials — salt, cinders, sand, calcium chloride, rock chips. Spreads at speeds up to 30 M.P.H. Clutch-controlled flow: steady or intermittent for hills and intersections.
Write for complete information

SWENSON SPREADER & MFG. CO.
LINDENWOOD, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 277



The new Allis-Chalmers Model FT-100, heavy-duty 10,000-pound-capacity lift truck is available with diesel, gasoline, or LP fuel engines.



Material-handling lift truck has 5-ton capacity

A new 10,000-pound-capacity lift truck is announced by the Allis-Chalmers Mfg. Co. Designated the FT-100, the truck has a heavy-duty, welded industrial-type frame, and is powered by a 230-cubic-inch Allis-Chalmers engine available in diesel, gasoline, or LP gas fuel models.

A new roller-type mast, said to give more lift without increasing the over-all lowered height of the unit, is available in three standard heights. The standard ITA shaft-type fork mounting carriage permits the use of a wide range of standard attachments, plus those built to order for specific requirements.

The truck has a 2-speed, constant mesh transmission that provides easy shifting. Power shift transmission, power steering, and a no-spin differential are optional.

Features of the FT-100 designed to give the operator comfort, safety, and convenience are a fully adjustable, cushioned seat; comfortably positioned steering wheel; conveniently located accelerator, brake and clutch pedals; simple, one-lever gear shift located on the steering column; lift and control levers within easy reach to the right of the operator; full-floating hydraulic service brakes, and a cam-action parking brake.

For further information write to Allis-Chalmers Mfg. Co., Tractor Group, Dept. C&E, 951 S. 70th St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 10.

New device secures polyethylene film tarps

A ball and clamp device to secure tarpaulins made of polyethylene film is available from the Visking Co.

Called the Visklamp, the device is similar in size and shape to the common bathroom shower curtain ring. The ball is rubber and slightly smaller than a ping-pong ball.

To secure the polyethylene sheet, the ball and film are pushed through the large end of the clamp. Then the small end of the fastener is slid under the ball to hold the film firmly in place.

For further information write to the Visking Co., Plastics Div., Dept. C&E, P. O. Box 1410, Terre Haute, Ind., or use the Request Card at page 18. Circle No. 122.

CONTRACTORS AND ENGINEERS

For Every ROLLING JOB

From the start to the finish of a road or street construction job, there is a size or type of GALION Roller for every compaction requirement.

Contractors and public officials all over the world have found GALION Rollers to be most satisfactory and economical.

In compacting a tremendous fill, an ordinary sub-base, miles of smooth finished surface, or just a simple maintenance patching job — you will find GALION Rollers offer you features that have made them the "most used" Rollers in the world.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices, Galion, Ohio, U.S.A.

TWENTY-FIVE SIZES and MODELS

- Roll-O-Matic Tandem Rollers
5-8, 8-10½, 8-12, 10-14 Ton.
14-20 Ton Three-Axle.
- Roll-O-Matic 3-Wheel Rollers
8 Sizes with Spoke-Type Wheels.
8 Sizes with Ballastable Wheels.
- Small Tandem Rollers
3-5 and 4-6 Ton.
- Portable and Trench Rollers

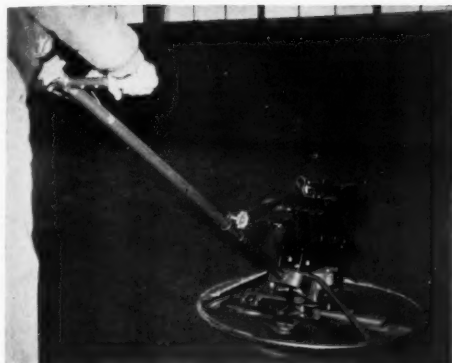


GALION
ESTABLISHED 1901

MOTOR GRADERS · ROLLERS

TRENCH ROLLERS · PORTABLE ROLLERS · 3-WHEEL ROLLERS · TANDEM ROLLERS · MOTOR GRADERS

For more facts, use Request Card at page 18 and circle No. 278



The Stow Model G34-4 troweling machine has 4 finish and 4 float blades. The unit's manual clutch control permits the operator to halt blade rotation without stopping the engine.

Rotary trowel features manual clutch control

The G34-4, a 34-inch troweling machine with 4 finish and 4 float blades, is announced by the Stow Mfg. Co. Both sets of blades are reversible for double life. The finish blades are made of chrome vanadium steel.

The G34-4 rotary trowel has a 2½-hp engine. A stationary guard ring allows the operator to work right up to walls and other obstructions.

One of the features stressed by the manufacturer is the manual clutch control. The instant the operator lets go of the handle the blades stop rotating but do not stop the engine. Besides being an important safety feature, with this type of control the operator can start up the engine at any throttle setting desired including full throttle.

The G34-4 has a handle that can be adjusted to suit the height of the operator. A lifting ring is also provided so that the machine can be lifted to second or third stories of buildings.

For further information write to Stow Mfg. Co., Dept. C&E, 40 Shear St., Binghamton, N. Y., or use the Request Card that is bound in at page 18. Circle No. 74.

Fluid transfer pump has automatic stop-and-start

A lightweight fluid transfer pump, that automatically starts and stops as the operator squeezes or releases the trigger on its high volume, gasoline-type valve, is announced by the Gray Co., Inc.

According to the manufacturer, the air-powered direct-from-drum pump is spark-free and cannot burn out. The fluid remains sealed-in from its 55-gallon container to the point of use, eliminating contamination and extra handling.

The pump is said to operate either in open head or the 2-inch bung opening of original drums. There is no pressure on, or in, the drum at any time.

For further information write to Gray Co., Inc., Dept. C&E, 1099 Sibley St. N. E., Minneapolis 13, Minn., or use the Request Card at page 18. Circle No. 100.

New dump bodies feature sloping running boards

Three new Speedlift dump bodies for use in handling stone, sand, asphalt mix, and similar materials are announced by the Daybrook Hydraulic Division of the L. A. Young Spring & Wire Corp.

Designated Series 803, 930, and 1030, the units offer special safety design features including sloping running boards, tailgate horizontal bracing, and bottom structural channel, all of which prevent the accumulation of dirt, stone, or free material during loading.

The bodies are offered in a range of capacities from 3 to 12 cubic yards, and in standard lengths and widths.

Other features stressed by the manufacturer include reinforced, heavy-duty understructures; full-height corner posts; an improved design, double-acting tailgate, said to be 50 per cent stronger with practically no increase in weight; a choice of heavy-duty hardware; and a new, improved method of adjusting tailgate spreader chains. Twenty-two models are available.

For further information write to Daybrook Hydraulic Div., L. A. Young Spring & Wire Corp., Dept. C&E, Bowling Green, Ohio, or use the Request Card that is bound in at page 18. Circle No. 20.

Wain-Roy BACK HOE

A SPEEDY HOE FOR YOUR TOUGHEST JOBS



PAYLOADER
on rubber...



Note right angle digging with minimum interference to passing traffic. Backhoe is attached or removed from "PAYLOADER" in a matter of minutes.



Excavating footings with a TD-9 and Wain-Roy backhoe. Here right angle digging enables backhoe to work efficiently in tight quarters.

You can double the utility and versatility of your tractor by adding a powerful Wain-Roy backhoe. Enables your present equipment to dig trench, footings, foundations, tank installations, service laterals; lift and lower pipe, tanks, valves; and scores of other jobs that keep your tractor profitably occupied.

A Wain-Roy backhoe enables you to dig and dump in a complete 190° radius — with plenty of dumping height to load trucks, plenty of reach to dump spoil away from the excavation. Twin boom cylinders develop a powerful crowding action and breakout force. The actuating bucket provides precise control and extra digging power with fewer complete operating cycles. Exclusive hydraulic system assures fast operating cycles, with complete safety.

Engineered to attach and remove in minutes — designed to fit "PAYLOADER" tractor shovels and International crawler tractors. See your International Construction Equipment Distributor, for full details.

Wain-Roy CORPORATION
Dept. H
HUBBARDSTON, MASSACHUSETTS

For more facts, use Request Card at page 18 and circle No. 279



Prestressed roof beams are stacked by two Karry cranes working as a team. Among the advantages claimed for the machines are excellent stability, power steering, adjustable boom, automotive-type controls, greater operator comfort and visibility, and a simple, fast, and positive hoisting mechanism. The units shown have a lifting capacity of 10,000 pounds. For further information about Karry cranes, write to Hyster Co., Dept. C&E, 2902 N. E. Clackamas St., Portland 8, Oreg., or use the Request Card at page 18. Circle No. 67.

The modern, effective way to handle cement for rear discharge!



Air-Slide CEMENT TRAILER

incorporates the Fuller Air Slide Principle

Will cleanly evacuate 100 barrels of cement in 10 minutes. No pounding or vibrating necessary. Air pressure gives complete rate of evacuation control. Low height and perfect load distribution. Fast loading through a minimum of 3 roof hatches. Hopper bottom gravity flow models also available.

Prices and weights quoted on request.

Distributorships available in certain areas

"Custom-Made Material Trailers—for ANY Commodity"

OMAHA STANDARD

2401 W. Broadway, Council Bluffs, Iowa

For more facts, circle No. 281



Photo courtesy Missouri State Highway Commission

Now! SOIL TESTING On-the-Spot with OLSEN Conbels

Even the limited area in a small mobile laboratory is ample room for four Olsen K-W Conbels. Multiple soil consolidation tests can be made simultaneously. Data is obtained quickly—right on the construction site.

Compact and easy to operate, the Olsen K-W Conbel simplifies soil testing anywhere. Get the facts. Write for Bulletin 50.

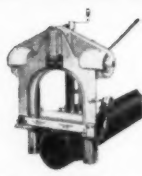
TINIUS OLSEN TESTING MACHINE CO.

2130 Easton Road

Willow Grove, Pa.

For more facts, circle No. 283

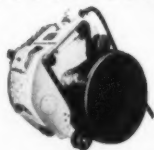
WACHS Portable POWER AND MANUAL PIPE CUTTERS 2" TO 72" CAPACITY



WACHS GUILLOTINE SAW
2" to 8" Capacity
Electric or Air Drive



"BIG" GUILLOTINE SAW
10" to 16" Capacity



WACHS NATIONAL SAW
"The milling machine on wheels"
Cuts 10" to 72" Pipe



WACHS STRICKLER
RATCHET CUTTER
"Lathe Type Cuts"
5 sizes—2 1/2" to 24" Capacity

Write for descriptive bulletins

THE E. H. WACHS COMPANY

Manufacturers of Engine, Valve and Machinery since 1883

1335 NORTH DAYTON STREET • CHICAGO, 33, ILLINOIS

For more facts, circle No. 282

RUGGED!



WITH THE NEW

SPARKLEEN[®]
liner

...keeps water
sparkling
clear

ARCTIC BOY portable water coolers

- Built to take abuse, for use on construction jobs, in mines, oil fields, service trucks—everywhere men work.
- Hot-dipped galvanized inset.
- Flush-mounted faucet.
- Large top opening, easy to ice, clean and fill.
- Write for further information... distributorships available.

THE SCHLUETER MFG. CO.
ST. LOUIS 7, MO.

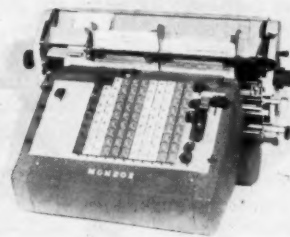


For more facts, circle No. 284

Accounting machine has number of new features

A completely re-styled, three-register accounting machine is announced by the Monroe Calculating Machine Co.

On an original statement and ledger accounts receivable application, the President, or B Series, machine is able to transfer balances to the statement the first time an account is activated during the month. This eliminates the need for trans-



ferring balances to new statements in a separate operation at the beginning of each month.

The machine also offers simplified error correction. The minus bar is, in effect, a reverse entry bar, making it possible to correct errors quickly and simply.

Equipped with selector knobs for instantaneous program changes, the President Model also offers a visible carriage with easy form insertion, fully automatic balances and sub-balance, as well as automatic carriage opening and closing and Monroe's Velvet Touch keyboard.

Machine capacity: 11-column keyboard; listing SY 79,999,999.99; totaling 79,999,999.99 positive and 10,000,000.00 negative; 8 to the inch horizontal printing; 18 1/2-inch automatic cross-tabulating front insertion carriage with motor return. The machine accommodates a full journal, and a 3 7/16-inch tape journal is optional.

For further information write to Monroe Calculating Machine Co., Dept. C&E, 555 Mitchell St., Orange, N. J., or use the Request Card at page 18. Circle No. 27.

For more facts on these products, circle the indicated number on the Request Card at page 18.

CONTRACTORS AND ENGINEERS

Truck equipment includes no-spin differential

Optional equipment has been added to the Model M30 power truck for improved performance in mud or soft fill. The Prime Mover Co. announces.

A Powr-Lok no-spin differential is offered for maximum power delivery on unstable surfaces, along with dual-drive wheels on heavy grip lug tread for extra traction.

The Powr-Lok differential delivers the major portion of engine power to the driving wheel with the better traction. It pulls out of spots where

vehicles with conventional differentials spin their wheels, according to the manufacturer. If one drive wheel goes off a runway onto soft fill, driving force is directed to the other wheel which has sure traction.

Tire wear is also improved by positive traction under all operating conditions.

For further information write to The Prime Mover Co., Dept. C&E, Muscatine, Iowa, or use the Request Card at page 18. Circle No. 62.

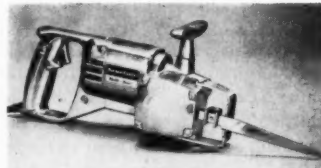


Optional equipment on the Prime-Mover M30 includes a Powr-Lok no-spin differential. If one wheel goes off a runway onto soft fill, driving force is directed to the other wheel which has sure traction.

Multiple purpose saw features orbital motion

A multiple purpose roughing-in saw that features orbital motion is announced by the Porter-Cable Machine Co.

Designated the Model 531 Multi-Saw, it may be used in cutting hard



or soft wood, aluminum, ferrous and non-ferrous metals in sheets or tubing, fiberboard, formica, asphalt, plaster, asbestos, conduit pipe, and hard rubber. Only 8 blades are needed to cut this range of materials, the manufacturer reports. The saw weighs 6½ pounds.

For further information write to Porter-Cable Machine Co., Dept. C&E, 112 Exchange St., Syracuse 8, N. Y., or use the Request Card at page 18. Circle No. 50.

New transistorized power supply for 2-way radios

A new transistorized power supply for mobile two-way radio systems is announced by General Electric. The unit replaces the receiver portion of the mobile power supply and is said to have a life expectancy equal to that of an entire mobile combination.

Designed around a printed wiring board, the unit measures 3½ inches wide, 4 inches long, and 1¾ inches deep. It weighs only 12 ounces and is small enough to be mounted on the front exterior of a standard General Electric two-way radio case. In other units, it may be mounted wherever it is most convenient.

Offered as optional equipment for Progress line 12-volt dc receivers, the unit may also be used with any standard make of mobile equipment using a 12-volt power source in the 25-54 mc. 144-174 mc. and 450-470 mc bands, regardless of manufacturer.

For further information write to the General Electric Communication Products Dept., Dept. C&E, Electronics Park, Syracuse, N. Y., or use the Request Card at page 18. Circle No. 152.

For more facts, circle No. 285-

HEAVY-DUTY TRUCK CRANE takes to the hills

Shows No Strain on Difficult Terrain, Even With 130 Feet of Boom and Jib



Hillside apartment buildings give residents a beautiful view. But their construction can raise some not-so-beautiful problems.

Each 6-story unit in this group of luxury apartments going up on the steep slopes of Montreal's Mount Royal requires the setting of 600 concrete joists. And each joist weighs 1000 pounds.

A Marion 43-M Truck Crane was brought onto the job after another firm, using competitive equipment, declared they were unable to accept conditions of the assignment. They felt their machine could not maneuver safely on the rugged site with the 100-foot boom and 30-foot jib needed to reach up and across the top floors.

The Marion has lifted and placed more than 6500 of the heavy joists at a rate of 160 per day. The dependability and adaptability of the 43-M Truck Crane on this difficult terrain has evoked praise from the building foreman.

Four-axle stability, heavy-duty construction of the machine, easy operation and precision placement with Marionair Control—these are the 43-M features which can solve unusual job problems for you, too. Ask your distributor for complete information about this or any machine in Marion's extensive line which meets your job requirements. Find out about today's 40-ton 43-M Truck Crane.

MACHINE	SHOVEL CAP. IN CU. YDS.	HOE CAP. IN CU. YDS.	CRANE RATINGS		
			CRAWLER MOUNT MAX. STABILITY	TRUCK MOUNT MAX. USABLE	TRUCK MOUNT MAX. USABLE
MARION 35-M	¾	¾	18T @ 10'	18T @ 10'	25T @ 10'
MARION 43-M	1	1-1¼	27T @ 10'	27T @ 10'	35T @ 15'
MARION 362	1½	1½-2	43T @ 12'	30T @ 15'	
MARION 87-M	Special Crane		150T @ 12'	75T @ 15'	
MARION 93-M	2½	—	80T @ 12'	50T @ 15'	
MARION 101-M	3	—	84T @ 12'	57T @ 15'	
MARION 111-M	4	—	110T @ 15'	105T @ 15'	

*For Comparison Purposes Only

MARION

POWER SHOVEL COMPANY
Marion, Ohio

SEND ME information about MARION _____ yard shovels, _____ yard hoes and _____ ton cranes (☐ crawler mounted ☐ truck mounted). ☐ Have a salesman call.

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____
(135)

Front-mounted telescopic hoists cut load stresses



A new line of Gar Wood—St. Paul front-mounted telescopic hoists, designed to permit greater payloads under current axle weight-limit laws, is announced by Gar Wood Industries, Inc.

According to the manufacturer, the new hoists feature an exclusive ball and socket mounting arrangement at the base and top of the cylinder to eliminate side load stresses. Special "X" type bracing gives the sub-frame added strength and rigidity.

Wide brass bearings inside the cylinder provide a large bearing surface to protect the cylinder walls. Cylinder sleeves, made of special seamless alloy steel, are bored and honed to a highly polished finish to reduce binding. Heavy brass packing nuts at the top and base of each cylinder are said to make proper adjustment of packing easy.

An automatic safety relief valve eliminates extreme high pressure at the end of the cylinder stroke, reduc-

ing overheating, wear, and leakage. A safety control valve stops further movement of the hoist at the end of the stroke to prevent over-travel damage.

Gar Wood has also announced a new line of bodies, especially designed

for the new front-mounted telescopic hoists.

For further information write to Gar Wood Industries, Inc., Dept. C&E, 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 5.

Lightweight lever puller features safe operation

A lightweight lever puller, a safe, compact hand tool for lifting, lowering, and dragging, is announced by The Harrington Co.

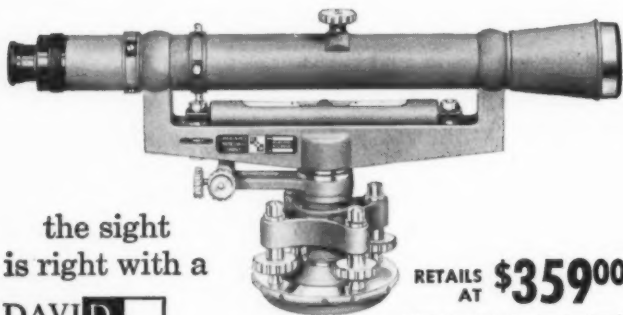
Known as the Peerless Pal lever puller, the unit is available in 1/4 and 1/2-ton capacities. It has an oval-link chain, square drive ratchet head in the operating handle, and a friction holding brake. The unit has a detachable handle. The snatch block, which doubles capacity, can be installed without tools.

Designed for minimum headroom and to permit operation of the handle in any position of a complete circle, the Peerless Pal can be used to handle loads in both open and confined spaces, according to the manufacturer.

Contributing to safe operation is the unit's tubular handle, which re-



portedly begins to bend when the puller is overloaded and, before the unit is harmed, breaks at 60 per cent overload. Also, it has been designed so that the operator must pull harder



the sight is right with a

DAVID WHITE

RETAILS AT **\$359.00**

Write for NEW Instrument Catalog

7180 ENGINEERS' 18-INCH DUMPY LEVEL—especially developed for profile leveling, taking cross sections, setting slopes and grade stakes, sewers and pipe lines, railroads, topographic surveys and contouring. Engineered with unfailing accuracy... designed with fewer parts to eliminate wear and displacement. Before you buy, compare this White Dumpy level with a similar model of any other recognized make. From every standpoint—design detail... quality construction... work-speeding, life-lengthening features and cost—you'll quickly see why a White's the best buy you can make.

UP TO THE MINUTE IN DESIGN • DOWN TO THE SECOND IN ACCURACY!



7015 Engineers' Transit—ideally suited to the needs of engineers, contractors, surveyors... highways, bridges, roads, mines, forests, subdivisions, sewers, dams, farms, large construction, etc. Retail at \$465.00



8300 Universal Builders' Level Transit—for heavy-duty work in connection with all survey and check-up operations on buildings and road construction, etc. Retail at \$187.00



8200 Construction Transit—Ideally suited for work in connection with highways, bridges, roads, mines, forests, sewers, dams, farms, etc. Retail at \$345.00

Prices slightly higher west of the Rocky Mountains

Use our time payment plan—as little as 10% down at authorized David White dealers—Prices slightly higher West of the Rocky Mountains.

DAVID WHITE INSTRUMENT COMPANY

2051 North Nineteenth Street, Milwaukee 5, Wisconsin

For more facts, use Request Card at page 18 and circle No. 286



A REVOLUTIONARY NEW ASPHALT PLANT

TOPS IN SPEED, PRODUCTION, PORTABILITY

Available as 100 to 130 T.P.H. stack-up type or 60 to 70 T.P.H. fully portable self-erecting installations



- ▶ MOST RUGGED PLANT ON THE MARKET... BUILT TO LAST.
- ▶ ENGINEERING COUNSELING AVAILABLE... NO OBLIGATION.

IRON WORKS, INC. NORRISTOWN, PA.

For more facts, use Request Card at page 18 and circle No. 287

CONTRACTORS AND ENGINEERS

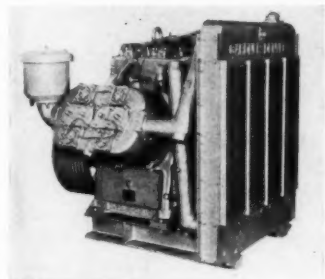
as the load approaches top capacity of the unit, thereby discouraging overloading.

The friction brake is said to hold a load at any location and lower it smoothly. A lightweight aluminum housing protects the working parts from damage by dirt or rough handling. The 1/4-ton unit weighs 53 1/2 pounds; the 1/2-ton unit weighs 113 1/2 pounds.

Suggested applications include relocation of machinery, lifting equipment parts into place, tightening guy and fence wires, and positioning and holding structural members while welding.

For further information write to The Harrington Co., Dept. C&E, Plymouth Meeting 31, Pa., or use the Request Card that is bound in at page 18. Circle No. 16.

New 200-hp compressor occupies minimum space



The addition of a new, high-capacity unit to its WB line of air compressors is announced by the Gardner-Denver Co. The new Model WBN is a 200-hp, 2-stage packaged unit that occupies only 34 square feet of space.

The WBN needs no special base. All that is required to put it into operation is to bolt it down and hook it up to a power source, the manufacturer reports. Once installed, it is said to operate on long, steady runs with little attention.

The WBN is available with a tube-type intercooler or with a self-contained radiator-intercooler which saves on cooling water.

For further information write to Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 52.

For more data on any item, circle indicated number on card at page 18.

"Elevation 6,170 ft.

...yet smoothest power performance"

Scenic Pike's Peak provides the background for this concrete saw, working at "mile-high" Peterson Air Field near Colorado Springs, Colorado. The saw is making an inch-deep cut around deteriorated areas of concrete, moving forward at speeds up to 12 fpm. The high torque design and heavy-duty features of the Wisconsin Engine provide the rugged stamina and load-holding lugging power for smooth power performance anywhere. Write for Bulletin S-198, pinpointing location of all distributors and over 2,000 service stations ... several near you.



IT'S
WISCONSIN-POWERED



WISCONSIN MOTOR Corporation

MILWAUKEE 46, WISCONSIN
World's Largest Builder of Heavy-Duty Air-Cooled Engines

For more facts, use Request Card at page 18 and circle No. 288

Announcing the NEW SAFE-T-FLARE TRANSISTOR ECONO-FLASHER BARRICADE at AMAZING LOW COST

Head of
rugged
plastic
Light
stays on
longer

EXTRA LARGE DELUXE HEAD.
28" lens area. Incandescent
brilliantly. Rotates 90°. Ex-
clusive theft-proof mounting.



Sturdy steel
30" panels
CAUTION
Reflectorized.
Other
side striped yellow with black.
Strong angle iron legs fold
for easy transportation.

(Rental policy on original Twin Flasher Barricade still available on same economical basis).

WRITE • WIRE • PHONE ORDER for IMMEDIATE DELIVERY
(Samples on Request)

SAFE-T-FLARE CORP. 2005 Armour Rd., North Kansas City,
Missouri, Vletor 2-1329

Standard Head \$19.95

For more facts, use Request Card at page 18 and circle No. 289

NO MOVING PARTS
State Highway Department
lab tests show
Econo-Flasher stays on
5 TIMES LONGER — 30%
BRIGHTER THAN ANY
FLASHER TESTED.

HERE'S GOOD NEWS FOR
CONTRACTORS, BUILDERS,
MUNICIPALITIES!

Now the new SAFE-T-FLARE
TRANSISTOR ECONO-FLASH-
ER BARRICADE is in full pro-
duction. It operates under all conditions
on tiny, yet powerful transistors. Sealed
in power supply guaranteed two years.
Water-proof. Low cost!

Model SF 1000B **\$29.95**

complete with
standard head

(Battery extra)
Light and other parts may be ordered separately,
at low prices.
Quantity prices supplied on request.

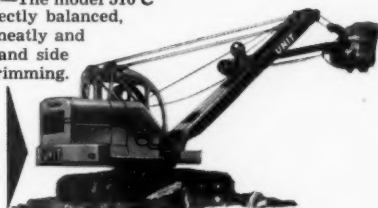


Meet the
UNIT Challenger
Model 510 C

AS A TRENCHOE—The model 510 C
is powerful, compact, and perfectly balanced,
it digs deep ... trims corners neatly and
squarely ... cuts level floors and side
walls without additional hand trimming.

AS A SHOVEL

The model 510 C performs with
speed and precision. Has plenty
of stability and produces maxi-
mum yardage.



ADDED to the UNIT Challenger 3/4 yard line of excavating
equipment is the new UNIT 510 C. This crawler type
model features: One Piece Cast Gear Case ... Self aligning
Replaceable Hook Shoes ... Force Feed Lubrication ... Full
Floating Trunnion Mounted Tapered Drums ... Straight-in-
line Engine Mounting with Torque Converter ... Hydraulic
Actuated Clutches and Automatic Traction Brakes ... Inter-
changeability of Parts that simplify maintenance and cut costs
... plus many other advanced engineering features.

And the safety promoting FULL VISION
CAB enables the operator to SEE what
he is doing at all times. Get all the facts.
Write for your copy of Bulletin C 900.



UNIT CRANE & SHOVEL CORPORATION
6309 W. Burnham St. • Milwaukee 19, Wis., U. S. A.

Geared to Produce Maximum Yardage



For more facts, use Request Card at page 18 and circle No. 290

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

WINSLOW—PORTABLE TRUCK SCALE

"THE CONTRACTORS' SPECIAL SCALE"



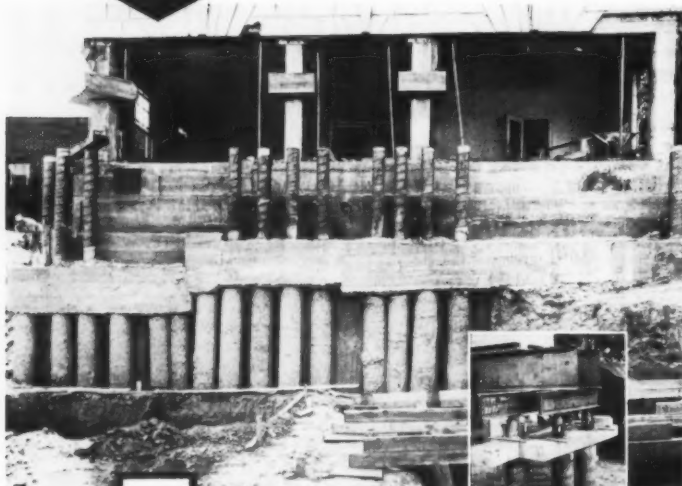
For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Cap.: 15-18-20-30, 50 tons.

WINSLOW SCALE COMPANY

P. O. Box 1198
Terre Haute, Indiana

For more facts, use Request Card at page 18 and circle No. 291

Building load
temporarily transferred
from footing to piles



Hospital addition, Memphis, Tenn.
Intrusion-Prepakt, Inc., Contractors,
Cleveland, Ohio. Photo courtesy of
Intrusion-Prepakt, Inc.

Pile extensions formed with SONOCO SONOTUBE® Fibre Forms

Eighteen-inch diameter cast-in-place Intrusion grout piles were used as a temporary support for this hospital addition.

The pile extensions above grade were formed by Sonoco SONOTUBE Fibre Forms and took building loads off footings during underpinning with concrete slab.

Upon completion of the underpinning, the load was transferred and the pile extensions cut off.

Use low-cost Sonoco SONOTUBE® Fibre Forms for round columns of concrete and save time, labor and money. They are specifically designed to form piles, piers and underpinning for a variety of structures. Sizes from 2" I.D. to 48" I.D. up to 48' long. Can be ordered in specified lengths or sawed to requirements on the job. See our catalog in Sweets.

For complete information and prices, write



**SONOCO
PRODUCTS COMPANY**

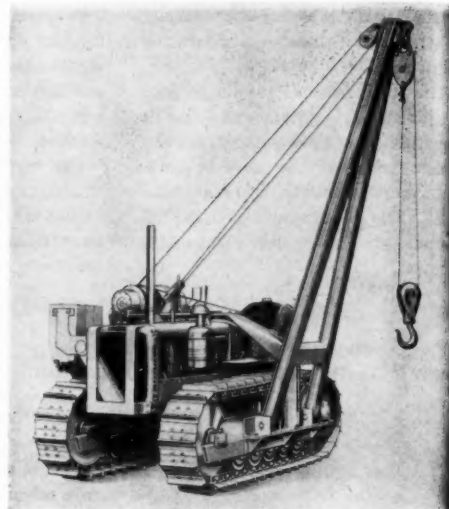
CONSTRUCTION PRODUCTS DIVISION
HARTSVILLE, S. C.

LOS ANGELES, CAL. 5555 SOUTH WESTERN AVE. MONTCLAIR, N. J. 14 SOUTH PARK STREET
AKRON, IND. • LONGVIEW, TEXAS • BRANTFORD, ONT. • MEXICO, D. F.

For more facts, use Request Card at page 18 and circle No. 292

Product Parade

Designed for use with the Caterpillar D4 tractor, the Midwestern No. 4 hydraulic pipelayer for smaller diameter lines has a rated lifting capacity of 17,500 pounds at 4-foot overhang, with a boom length of 13 feet.



Hydraulic pipelayer for smaller diameter lines

Its No. 4 hydraulic pipelayer, designed for use with the Caterpillar D4 tractor on smaller diameter pipelines, is announced by the Midwestern Mfg. Co.

The No. 4 hydraulic pipelayer has a rated lifting capacity of 17,500 pounds at 4-foot overhang, and has a boom length of 13 feet. When attached, the pipelayer provides a tractor clearance of 13½ inches. Hydraulically operated counter-weights are furnished as standard equipment.

Besides its use with small pipe, the unit can also be used for handling such miscellaneous items as concrete drain pipe, and can serve as a mobile crane with relatively large capacity, according to the manufacturer.

Simplified operation, precise positioning, and maneuvering of heavy loads is made possible by a closed hydraulic system controlling the sideboom. Throttling-type hydraulic valves are said to assure positive and rapid response of the sideboom, even

under capacity loads.

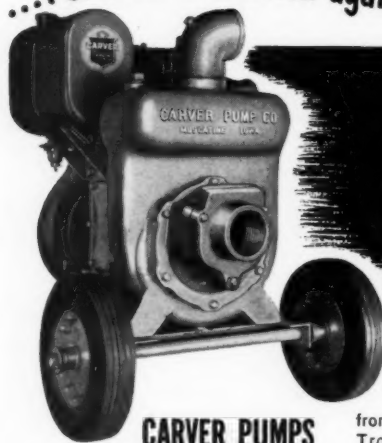
The unit can also do an efficient job of backfilling when it is equipped with an angle filler, which is available from the firm, and which operates from the same hydraulic system as the pipelayer.

The No. 4 hydraulic pipelayer is also useful as a utility machine, with many applications on pipeline maintenance jobs. Pipe-bending attachments are available.

The ample capacity of the No. 4 pipelayer plus its relatively small size make it especially suited for projects where work must be performed on narrow right-of-ways. Its width of 94½ inches allows it to be transported along highways without special permits, the manufacturer reports.

For further information write to Midwestern Mfg. Co., Dept. C&E, P. O. Box 1886, Tulsa 1, Okla., or use the Request Card at page 18. Circle No. 19.

...For Real Protection against Shaft Leakage...



CARVER PUMPS

**GREASE
LUBRICATED
MECHANICAL
SEALS**

... with grease-lubricated mechanical seals ... are your best guarantee for lightning fast prime, outstanding performance and minimum operating costs.

Depend on CARVER for the complete line of contractors pumps from 4000 G.P.H. to 250,000 G.P.H. Trouble-free and maintenance-free these CARVER PUMPS are "Your Best Buy for Better Performance!"

Write the factory or see your CARVER Distributor for complete information.



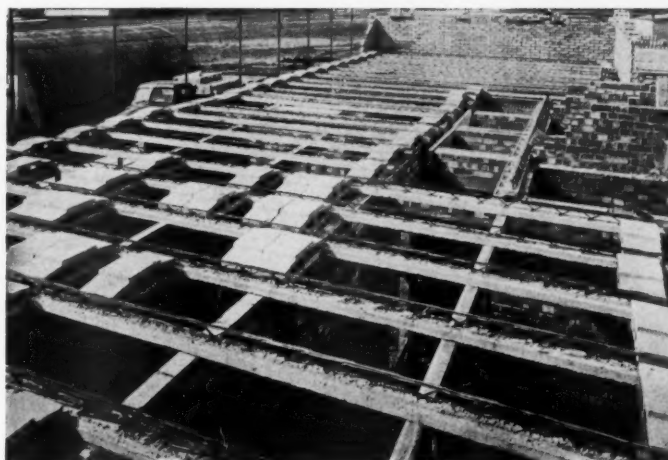
CARVER PUMP CO., 1404 Hershey Ave., Muscatine, Iowa

The quality name in pumps

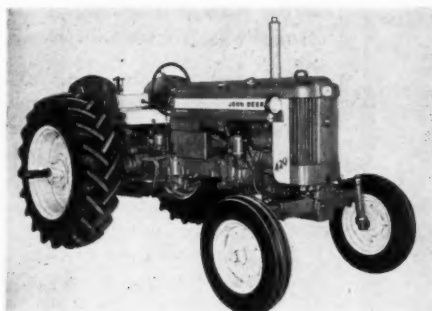
For more facts, use Request Card at page 18 and circle No. 293

CONTRACTORS AND ENGINEERS

A new type of concrete floor and roof deck, said to provide the structural advantages of cast-in-place concrete, yet simpler to erect than precast flooring, is announced by the Omnia Construction Corp. The floor consists of three components: the Omnia plank, filler blocks, and concrete topping. The plank, a reinforced steel lattice girder with a reinforced concrete base, provides the support for the floor. Lightweight concrete blocks rest between the planks. The planks and blocks provide both support and forming for the concrete topping. Monolithic in character, the block and beam deck is adaptable to spans of 30 feet or more. For further information about this flooring system, write to **Omnia Construction Corp.**, Dept. C&E, 30 S. Broadway, Yonkers, N.Y., or use the Request Card at page 18. Circle No. 66.



New tractor handles wide range of equipment



The John Deere Model 420 special utility tractor handles a wide variety of front and rear-mounted equipment, including backhoes, loaders, and trenchers.

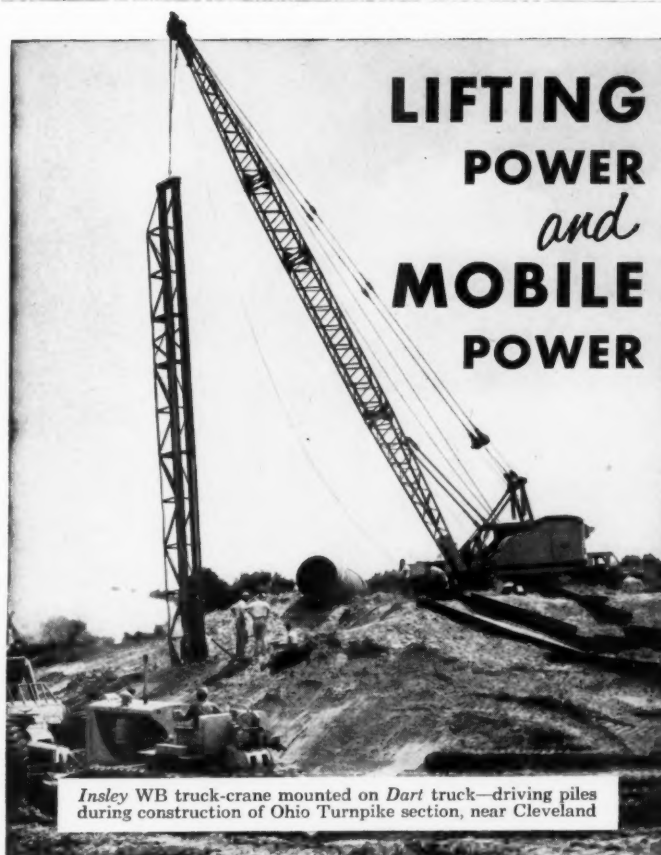
A new wheel-type utility tractor, with power steering optional, is announced by John Deere. Designated the 420 special utility model, the unit is said to handle a wide variety of front and rear-mounted working equipment, including backhoes, loaders, and trenchers. The 3-point hitch takes standard 3-point-hitch tools.

The new tractor delivers approximately 30 engine horsepower and is designed for extra all-around stability under load, according to the manufacturer. Regular equipment includes

adjustable rear wheels and dual Touch-o-matic hydraulic control. Front wheel tread is fixed at 52 inches, center to center of tires.

In addition to power steering, optional equipment includes speed-hour meter, foot throttle, direction reverser, pre-cleaner, remote hydraulic system, and 5-speed transmission.

For further information write to Deere & Co., Dept. C&E, 3300 River Drive, Moline, Ill., or use the Request Card that is bound at page 18. Circle No. 106.



**LIFTING
POWER
and
MOBILE
POWER**

Insley WB truck-crane mounted on Dart truck—driving piles during construction of Ohio Turnpike section, near Cleveland

**BOTH Crane and Truck have
WAUKESHA
ENGINES**

VULCAN

...the PILE EXTRACTORS
you can depend on for

SPEED-

jobs get done faster, better.

ECONOMY-

efficient, balanced design, sturdy construction assures enduring economical performance.

EASY OPERATION-

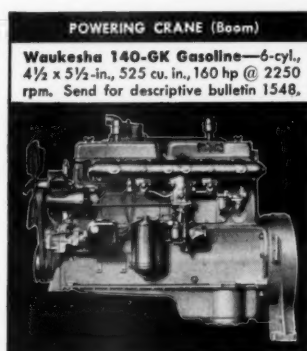
simple in design, it is easy to operate—pulls sheet steel, wood, concrete, H-beam and pipe piles with the greatest of ease.



Manufacturers of Pile Driving Hammers and Piling Extractors Since 1852

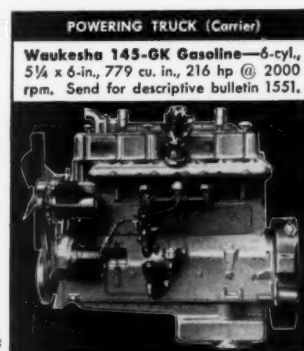
VULCAN IRON WORKS INC. 327 North Bell Avenue, Chicago, U.S.A.

For more facts, use Request Card at page 18 and circle No. 294



POWERING CRANE (Boom)

Waukesha 140-GK Gasoline—6-cyl., 4½ x 5½-in., 525 cu. in., 160 hp @ 2250 rpm. Send for descriptive bulletin 1548.



POWERING TRUCK (Carrier)

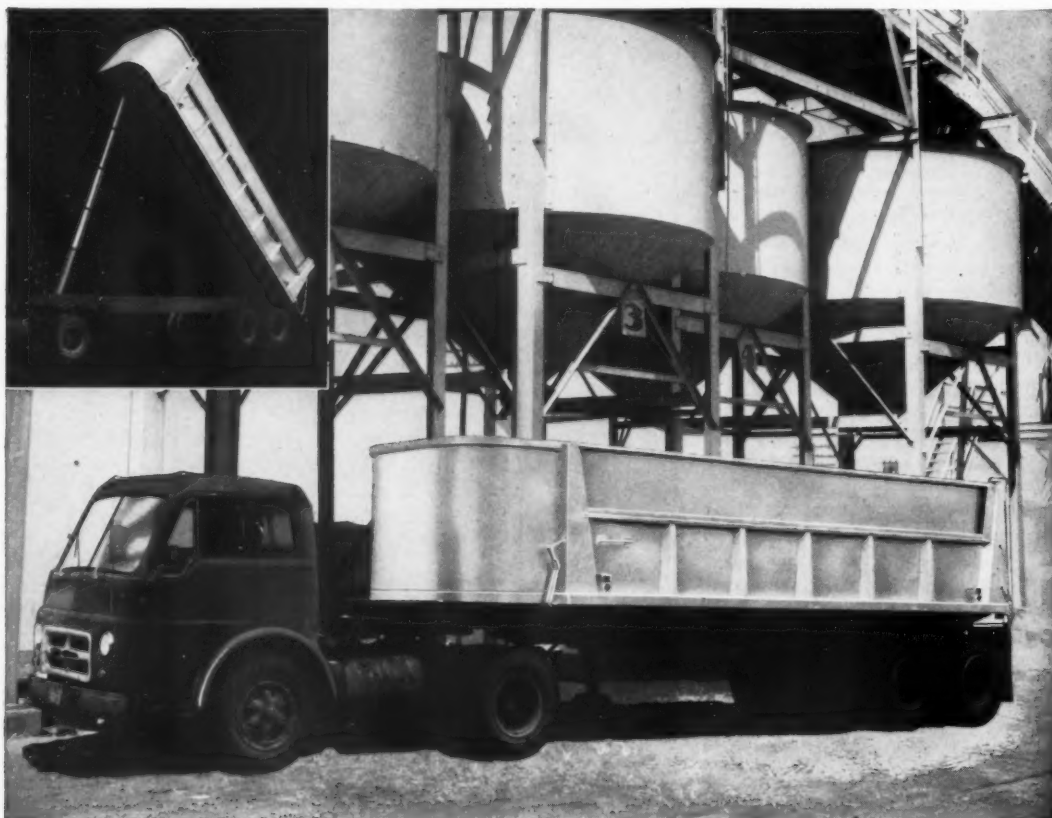
Waukesha 145-GK Gasoline—6-cyl., 5¼ x 6-in., 779 cu. in., 216 hp @ 2000 rpm. Send for descriptive bulletin 1551.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES
For more facts, use Request Card at page 18 and circle No. 295



Equipment subject to damage by weather is covered by plastic sheeting of polyvinyl chloride. Much lighter than canvas, the plastic sheeting does not absorb water. Also, the material is transparent, permitting the identification of the objects beneath without removing the sheeting. It comes in rolls 20 feet wide by 100 feet long and 4 mils thick. For further information about polyvinyl chloride plastic sheeting, write to the Scientific Design Co., Inc., Dept. C&E, 2 Park Ave., New York, N.Y., or use the Request Card at page 18. Circle No. 110.



Model STM, with Uni-scope hoist and 26 ft., 30 cu. yd. body is ideal for economical bulk hauling. Galion design saves weight... hoist, body and chassis form closed triangle for maximum stability when dumping.

GALION TRAILER DUMPS

haul more...earn more with every load!

There's a model in Galion's trailer dump line *exactly* suited to your loads and the axle weight limitations in your locality. You'll find that you can select a Galion trailer dump custom-engineered for ideal weight distribution on *your* job... one that will enable you to haul extra profit-making payloads *legally*.

And, Galions are safer, too! They provide unexcelled stability, both on the highway and when dumping. All wheels remain on the ground as the body raises... stresses are evenly distributed throughout the running gear. What's more, Galion's lightweight yet rigid body-hoist-chassis combination eliminates twisting — a common cause of dumping upsets!

Your Galion distributor offers a full choice of trailer dump body, hoist, chassis and running gear types and capacities. Ask him to show you how you can haul more... earn more with Galions.



MODEL SSM—Best where local weight laws allow high individual axle weight limits, but relatively low gross weight limit.



MODEL STM—For use where weight laws allow credit for only one set of tandem axles, with medium gross weight limit.



MODEL TTM—Used in those areas where highway weight limit laws allow maximum credit for two sets of tandem axles.



MODEL HH—Ideal where laws permit "trains" and require maximum axle spacing for greatest gross weight allowance.



more payload... more profits with Galion!

GALION ALLSTEEL BODY COMPANY • GALION, OHIO

For more facts, use Request Card at page 18 and circle No. 296

Offer new portable diesel electric sets

Three new portable diesel electric sets are announced by Caterpillar Tractor Co. The units are the Caterpillar D311, D315 (Series G), and D318 (Series G) diesel electric sets, each equipped with the new, compact Caterpillar generator.

The D311 electric set develops 30 kw of 60-cycle, 3-phase current, while the D315 (Series G) unit is rated at 40 kw, and the D318 (Series G) at 60 kw.

These highly mobile units are available either skid-mounted or with running gear, and the output of their self-regulated, constant-voltage generators furnishes a choice of 120, 240, 120/208 or 480-volt current at 1,800 rpm.

Standard equipment on the sets includes 24-volt, 18-amp charging generators and 24-volt, 170-amp-hour battery sets. The power units also come equipped with 24-volt direct electric starting, wrap-around bases.

(Continued on facing page)

SAVE MONEY SEND US YOUR ORDERS FOR ROTARY SWEEPERS NEW BROOM CORES

Do You Know We Manufacture NEW
Cores of the Following Types:

- Grace (3 types)
- Hough
- M-B (Mell-Blumberg)
- Detroit-Harvester
- Fordson
- Little Giant
- Huber
- Lull
- Spearwell

and other popular makes

YES! We Can Make Cores to

Your Specifications

We Rebuild—Repair—Re-

fill All Makes and Sizes of

Broom Cores.

Immediate Shipment

SUGGESTION—To Far-Away Users—Buy your

NEW Cores only without any filling or we will

furnish complete Palmyra-Hickory or Bass Fibres

—Even Steel Wires.

Road Builders—It's Sensational!!

BIG PECKERWOOD BIG

C-O-N-T-I-N-U-O-U-S

Steel Wire Road Drag Leveler. Six (6) Inches Wide

—Name Your Length

Not STAPLE set

In Stock Lengths of 4-8-10 or 12 foot

Only \$3.50 Foot "Approx. wt. 5 1/2 lbs. per ft."

NO FRAME REQUIRED

The LITTLE PECKERWOOD

3" Wide, 15" Length

Take Plus Your Frame

NOTE—Both Drags

Can Be Furnished

with Fibre. Only \$3.50 Ea.

KENNEDY'S

Since **VAN BRUSH MFG. CO., INC.** 1928

Dept. A. 327 Southwest Blvd., Kansas City, Mo.

For more facts, circle No. 297

CONTRACTORS AND ENGINEERS

The Master 29-inch power trowel is designed to work the largest area possible, while retaining its ability to go through doors and into tight places.



New 29-inch power trowel designed for tight work

A 29-inch power trowel, said to combine the operating economy of a small trowel with large trowel performance and design, is available from the Master Vibrator Co.

The unit features a push-pull lever on the handle for adjustment of the troweling angle of all three blades while the machine is running. The throttle lever, also on the handle, keeps full control in the operator's hands at all times.

An automatic clutch makes sure the engine is at operating speed before the blades are engaged, the manufacturer reports. The stationary metal guard ring on the unit allows operators to work in corners and around obstructions. Powered by a Briggs & Stratton 2 1/4-hp engine, the trowel weighs 77 pounds.

For further information write to the Master Vibrator Co., Dept. C&E, 1752 Stanley Ave., Dayton 1, Ohio, or use the Request Card at page 18. Circle No. 103.

(Continued from preceding page)

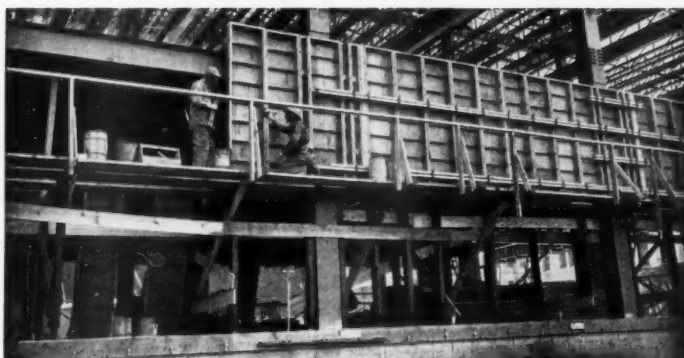
control panels and water temperature-oil pressure safety shut-offs. The two smaller sets have 50-gallon fuel tanks, and the D318 (Series G) has a 57-gallon fuel tank.

Control panels for the sets have an ac ammeter with phase selector switch, ac voltmeter, battery-charging ammeter, circuit breaker, and three current transformers. In addition, the electric set packages include radiators, blower fans, lubricating oil coolers, and vernier-type governor controls.

Designed into all three units are features intended specifically for the safety of operating personnel, according to the manufacturer. The control panels are enclosed, and flexible conduit protects all wiring.

The control doors can be locked to prevent tampering, and switchgear is enclosed under weatherproof covering by doors that may be closed in bad weather. There is a safe terminal board for load leads, and a grounding lug for completely safe operation, the manufacturer reports.

For further information write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 56.



9,000 sq. ft. of Symons Forms reused 12 times on this job. William Baumeister Const. Co., St. Paul, Gen. Cont.

Spandrel Beam Forming Cost Cut 2/3 with Symons Forms

Because of the efficient combination of Symons forming, shoring and scaffolding methods, the contractor was able to cut his estimated cost by two-thirds on the \$2,000,000 home office building of the Minnesota Mutual Life Insurance Company of St. Paul, Minnesota.

In addition to savings in labor cost, considerable time was saved in forming the Spandrel Beams of this 9-story building. The adaptability of Symons Shores with their safe "T" heads speeded the forming and scaffolding work. 2 x 8 ft. Symons Steel Rib forms were used to frame 56,000 square feet of Spandrel Beams. Symons Shores were used throughout in beam construction. All foundation walls are 16 feet in height.

Send for our Catalog F-10 which gives complete information on Symons Forming, Symons Clamp & Mfg. Co., 4251 Diversay Avenue, Dept. H7, Chicago 39, Illinois.

For more facts, use Request Card at page 18 and circle No. 298



Capacities: 900, 600, 365, 210 and 125 cu. ft. 75 cu. ft. model built in piston type.

Six CP Rotaries selected for sea duty!

Six 900 cu. ft. "Power Vane" Rotary Compressors have been called for sea duty aboard an 800-ton, sea-going barge owned by the Creole Petroleum Company. Chicago Pneumatic Rotaries were selected for this special detail because of their record of dependability on heavy construction projects... and because they require a minimum of attention.

This battery of "Power Vane" 900's will furnish all the air needed to drive piling and to power the barge's winches and jetting pump while constructing off-shore drilling platforms in Venezuela. *Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, New York.*



Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES



For more facts, use Request Card at page 18 and circle No. 299

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

WISCONSIN TRAILERS FOR EFFICIENCY AND ECONOMY

IDEAL for hauling CAT 955 AC, HD - 6'G Trencher, 10 to 12 Ton Rollers, and front end loaders. Low cost and rugged construction make it the most wanted trailer available to-day.

MODEL 1020
\$1525.00

w/tires and deck
plus tax and freight



2 to 12 Ton Capacity Trailers

- TIMKEN BEARINGS
- REINFORCED INTERNAL BRACES
- BUDD WHEELS AND HUBS

- ADJUSTABLE PINTLE EYE HITCH
- LARGE, HEAVY, DEEP FRAME
- CONVENIENT HANDLES ON SIDE OF TONGUE

See your WISCONSIN TRAILER Distributor today for more details
WISCONSIN TRAILER COMPANY, 1949 N. 121 St., Milwaukee 13, Wisc.
Chosen By Comparison

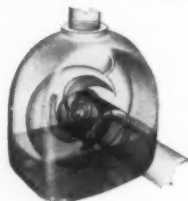
For more facts, use Request Card at page 18 and circle No. 300

NOW! Freedom from pumping failure!

SELF-PRIMING

Important announcement to pump users!
Here is a pump that never fails, never quits. Solids do not foul this pump. This new Gorman-Rupp design has *straight-in* suction. Pumped liquid enters direct to the eye of the impeller—increased capacity, higher efficiency, higher lift. Simpler. Fewer parts. Now available in sizes 1½", 2" and 3".

GORMAN-RUPP New "80 Series" Pumps



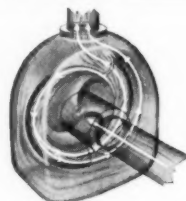
PUMP AT REST

Captured liquid retained for priming. Note the absence of the usual check valve.



PRIMING ACTION

Entrained air (B) escapes at (A) to be discharged. Priming liquid returns (C) to entrain more air.



PUMPING ACTION

Straight-in suction voids entrance restrictions. Water enters direct to eye of impeller.

CHECK THESE NEW-DESIGN FEATURES!

- Straight-in suction
- No check valve
- Lighter in weight
- Long-life mechanical shaft seal

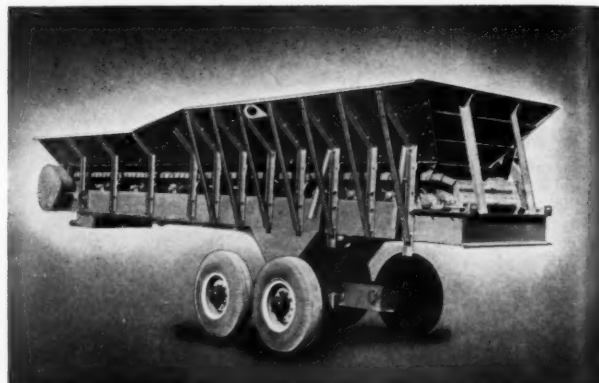
Engine or motor driven. Base or wheel mounts.

THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio

For more facts, use Request Card at page 18 and circle No. 301

Product Parade



The long Pioneer portable apron feeder is, in effect, a portable conveyor for heavy, sharp, abrasive rock or similar materials for which a standard conveyor is impractical.

Apron feeders designed for every application

A newly redesigned line of apron feeders, including more than fifty types and sizes of unit feeders and two sizes of portable apron feeders, is announced by Pioneer Engineering, Division of Poor & Co., Inc.

The basic unit feeder is furnished to operate from one of three standard power sources: driven from a feeder-mounted electric motor through a torque-arm reducer or from a gearmotor or motor-reducer; driven from a conveyor tailshaft; or driven from a crusher shaft or countershaft. Straight sideboards, flared sideboards, or hopper may be added to the basic feeder regardless of type of drive.

Unit feeders are available with standard pan widths of 30, 36, 42, and 48 inches, and in standard lengths of 4, 6, 8, 10, and 12 feet (nominal center-to-center distance between headshaft and tailshaft).

The long portable apron feeder, mounted on its own chassis and wheels and with hopper attached, is available in either the 36-inch×30-foot or 42-inch×30-foot size.

The new feeders have pans of ½-inch-thick steel plate, formed to overlap for increased strength and rigidity. These pans, together with upturned interlocking flanges welded to the pan ends, are said to provide a continuous carrier of material.

According to the manufacturer, the overlapped pans also provide a corrugated surface which prevents material from slipping and sliding, while the addition of sideboards, positioned inside of the upturned flanges, further prevents leakage and spillage, even while handling the heaviest of loads.

The pans are carried on heavy chains which, in turn, are supported on large idler rollers, the rollers being so spaced as to best withstand heavy shock and impact. The end shafts turn in babbitt bearings, of large diameter to give ample bearing surface, mounted on the top of the heavy channel frame to allow ready accessibility for adequate lubrication.

For further information write to Pioneer Engineering, Division of Poor & Co., Inc., Dept. C&E, 3200 Como Ave., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 6.

CONTRACTORS AND ENGINEERS

Transistorized amplifier has range to 3/4 mile

A portable transistorized amplifier with an audible clarity range of 3/4 mile is available from the Pied Piper Co.

The unit is operated on battery power with four F-cell lantern-type batteries said to have a longevity of up to four hours of continuous normal use.

It has a detachable speaker and phonograph turntable, and can be

used with or without the latter.

While it is furnished with a standard one-volt crystal-type microphone, it will operate with any microphone, according to the manufacturer.

Equipped with a carrying handle, the unit weighs 20 pounds.

For further information write to the Pied Piper Co., Dept. C&E, Plymouth, Wis., or use the Request Card at page 18. Circle No. 133.



New crane carrier units range up to 30 tons

A new line of FWD commercial carriers for cranes, shovels, backhoes, and draglines is offered by the Four Wheel Drive Auto Co. Though its primary carrier is a 15-ton, 6x4 model, the line also includes 25 and 30-ton units. The company will design other sizes to meet individual requirements.

The carriers are offered in a wide range of engine and wheelbase options. Engine options include 150-hp BD-308, 212-hp RD-501, and 216-hp 145GK gas engines, plus several diesel models in the same horsepower ranges.

Construction features include all-steel, one-man cab-alongside-engine styling. The heat-treated channel steel frame is said to be reinforced throughout for increased torsional strength but with weight maintained at minimums to meet state regulations.

The basic FWD carrier drive system is 6x4, with independent power to each of the two rear axles. The line also includes carriers with 6-wheel-drive, featuring a power-proportioning center differential, for specific applications.

The new carriers have removable sliding outriggers, and are available with 5 or 10-speed transmission.

For further information write to Four Wheel Drive Auto Co., Dept. C&E, 12th and Auto Sts., Clintonville, Wis., or use the Request Card at page 18. Circle No. 93.

Explore subsurface to 50 feet without drilling

A new instrument for shallow subsurface exploration without drilling has been announced by the Geophysical Specialties Co.

Designated the Model MD-1 refraction seismograph, the instrument is designed for determining depth to bedrock, the presence or absence of bedrock or solid material at any depth up to 50 feet, and identification of subsurface materials without drilling. Its features are said to include miniature size, direct reading, and simple operation.

Using complete transistorization, the weight of the entire equipment, exclusive of sledgehammer source, is 16 pounds.

For further information write to the Geophysical Specialties Co., Dept. C&E, 4206 Longfellow Ave., Minneapolis, Minn., or use the Request Card that is bound in at page 18. Circle No. 130.



HERE'S BIG-GRADER PERFORMANCE . . . economy size

The Allis-Chalmers Model D is a full-fledged motor grader . . . and a "natural" for road construction and maintenance jobs where fine grading performance and low cost are both important!

It has the basic design and performance features found in machines costing up to three times as much, but there is one important difference: The Model D is compact and maneuverable enough to work in crowded areas where many other graders cannot operate.

To add still further to its usefulness, the Model D may be equipped with a rear-mounted, 5/8 cu-yd loader, scarifier, shoulder maintainer, leaning front wheels, power circle turn, shiftable moldboard. Optional cab offers year-round operator comfort.

Let your Allis-Chalmers dealer show you how the Model D can measure up to your standards of grader performance . . . at low cost. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

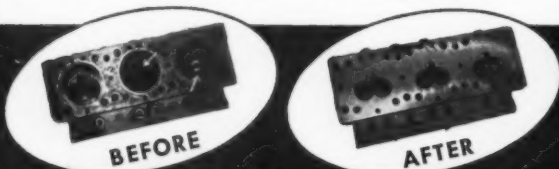
ALLIS-CHALMERS

Engineering in Action

For more facts, use Request Card at page 18 and circle No. 302

DON'T THROW AWAY CRACKED DIESEL CYLINDER HEADS

You can save 50% of replacement cost with Factory Rebuilt Guth Company Heads. The Guth Company restores cracked or worn heads, blocks, transmission cases to a Guaranteed good-as-new condition by the Guth fusion process . . . successfully used for more than a Quarter Century.



Send today for price list and a free booklet on the famous Guth Fusion Process, and the name of the dealer nearest you.

GUTH COMPANY

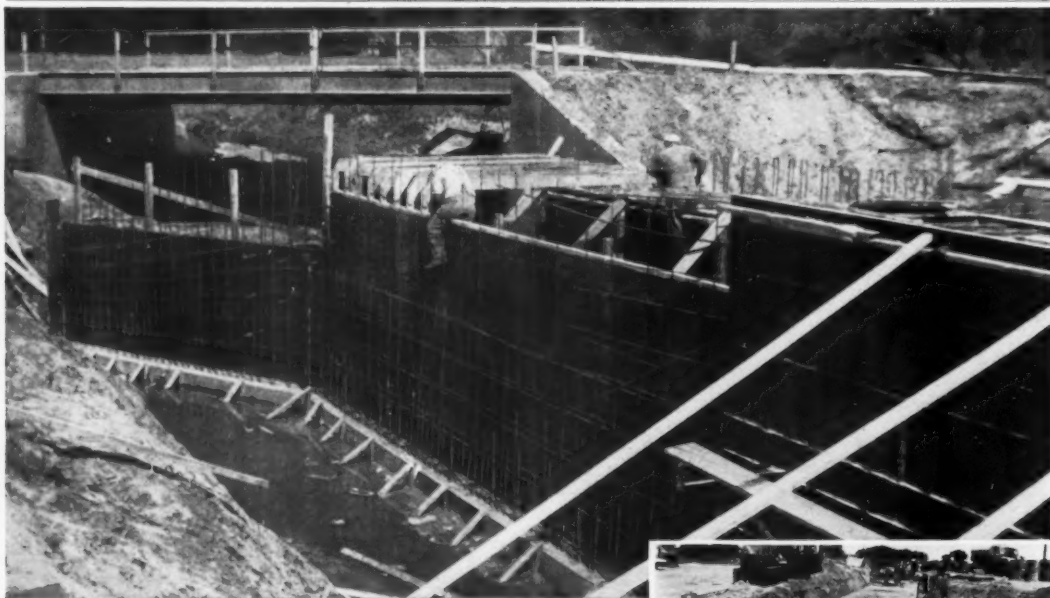
McPHERSON, KANSAS

SERVING THE NATION



FROM ITS CENTER

For more facts, use Request Card at page 18 and circle No. 303



forming Bridges, Culverts, Piers?

UNI-FORM PANELS

Save LABOR, MATERIAL, TIME!

Simple mechanical assembly and pre-engineered techniques for handling virtually any forming condition make UNI-FORM Panels your best bet for fast, low cost forming. Successful contractors everywhere are using the UNI-FORM system to form bridges, overpasses, culverts, piers and abutments, because their experience has shown that UNI-FORM Panels give them the speed, flexibility and economy required to handle this complex type of forming at the lowest possible cost.

Let us prove our point. Send a set of plans for detailed forming specifications, recommendations and cost analysis. There's no obligation, of course.

UNIVERSAL FORM CLAMP CO.

Concrete Form Specialists Since 1912

1236 North Kostner Avenue, Chicago 51, Illinois

BRANCH OFFICES AND WAREHOUSES

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24907 Lakeland Blvd.

LOS ANGELES, CAL.
5855 S. Western Ave.
BALTIMORE MD.
1020 N. Kresson St.

HOUSTON, TEX.
2314 Preston Ave.
ATLANTA, GEORGIA
1401 Howell Mill Rd., N.W.

For more facts, use Request Card at page 18 and circle No. 304

Product Parade



The Gardner-Denver RP125 rotary compressor features a clutch between the engine and the compressor. The unit is available with either gasoline or diesel engine.

Add 2 new models to line of rotary compressors

The addition of two new models—the RP125 and RP365—to its line of rotary compressors is announced by the Gardner-Denver Co. The clutch between the engine and the compressor has been retained in the new units.

According to the manufacturer, the engine starts freely, circulating warm engine water through the compressor oil cooler and reservoir. At the same time, warm free-flowing oil is supplied to the compressor as soon as it starts turning. The manufacturer points out that an oil pump assures positive oil flow for compressor lubrication and cooling, independent of receiver pressure, under all operating conditions.

The water cooling system is said to maintain constant operating temperature for both compressor and engine, even during extreme heat or cold.

The RP125 and RP365 are said to require only a few minutes for inspection of working parts. The removal of 12 cap screws is all that is required to expose the blades for inspection or replacement.

The Model RP125 is available with either gasoline or diesel engine. It is 10 feet 6 inches long—from the end of the stationary tow bar to the back of the compressor—4 feet 8 inches wide, and 5 feet high.

The Model RP365 is equipped with a diesel engine as standard equipment. It is 10 feet long—with movable tow bar in vertical position—5 feet 7 inches high, and has a net weight of 7,730 pounds.

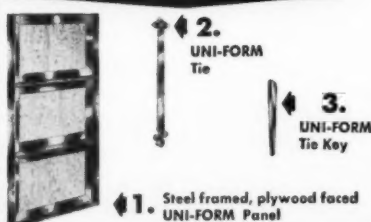
For further information write to Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 51.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

New rotary air drill is tractor-mounted

A new tractor-mounted rotary air drill is announced by the Davey Compressor Co. Designated Model M-8TA, the unit is said to be designed for extra-heavy jobs under the most severe working conditions. It has a rated capacity of 10-inch blast holes

Here Are The Basic Elements:



and 35,000 pounds pull-down pressure.

The M-8TA uses compressed air for cleaning drilled holes and is said to be completely successful as an air core drill.

The drill provides 85, 155, and 325 rpm normal drill bit speeds with 3-speed transmission. Air pressures of 10 to 125 psi are available from a 6-cylinder Davey 500-cfm-capacity compressor.

Originally designed for mounting on the Caterpillar D8, the drill can be adapted to other tractors of similar size. The drill is so designed that full use of the hydraulically controlled blade is retained. The tractor engine supplies power to the entire drilling unit through a chain and gear type power transfer case.

Draw works are of the 2-drum type, permitting handling of drill pipe or Kelly and swivel in the mast. The latter is of welded tubular steel construction with angle-mounted roller bearing crown block sheaves.

The drills are normally equipped with masts of standard 36-foot lengths to accommodate 26-foot round, fluted 5-inch-diameter Kelly bars. However, longer masts and Kelly bars are available, if they are desired.

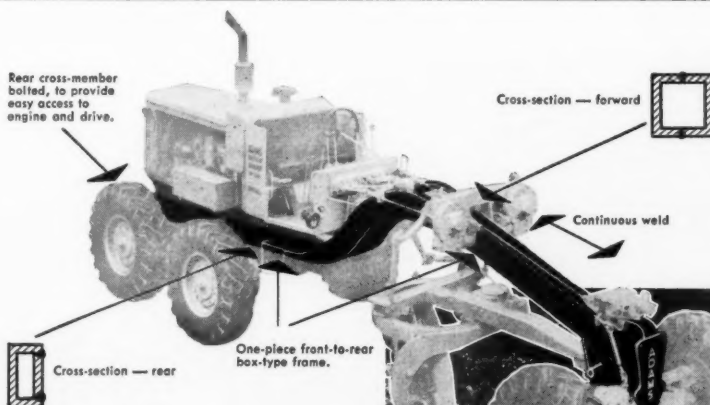
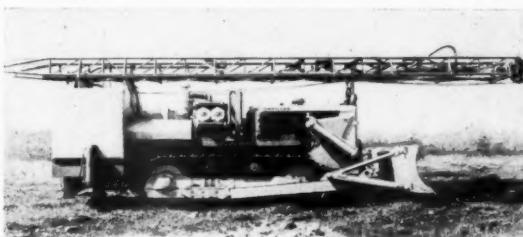
Two hydraulic cylinders raise and lower the mast. All drilling operations are controlled from a convenient panel at the rear of the machine.

Weight of the Model M-8TA, including tractor, is approximately 58,000 pounds.

For further information write to Davey Compressor Co., Dept. C&E, Franklin Ave., Kent, Ohio, or use the Request Card that is bound in at page 18. Circle No. 94.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

The Davey M-8TA tractor-mounted rotary air drill has a rated capacity of 10-inch blast holes and 35,000 pounds pull-down pressure. Designed for mounting on the Caterpillar D8, it can be adapted to other tractors of similar size.



This big Adams makes first bank-cut on rough, rocky highway construction job near Golconda, Illinois. Operator likes the ability of the grader to do rugged, hard work. He thinks Adams-type power steering and power-shift moldboard are tops.

Why your grader-frame is so important

You move dirt faster...grade at lowest cost...only when your grader accurately applies its full work-power to the ground. A strong, stable blade-foundation is essential if you want to work fast while you cut tough bank-slopes...hold precision grades...spread big-volume fill...grade roughest haul-roads...plow-out large ditches...mix heavy windrows of base...work through rocky soil at full power.

Extra-sturdy Adams* frame... 1-piece from front to rear

Front-to-rear members of the Adams main-frame are heavy, steel U-channels. In the front, two full-length channels are welded together to form a box section. From top of arch to rear, each channel is boxed-in with steel plate. Frame is continuous-welded from front bolster plate to boxed-in rear-end. This forms a one-

piece, steel "wishbone" frame of rectangular box construction.

Steady blade-mount...rigid, strong

Adams main-frame is steady and rigid under hardest day-to-day operating conditions. It provides a stable mount for the blade—no matter how tough the going. Its solid strength assures a big bite...a smooth, precise finish-surface. No faltering when work is rugged...no "riding-up", no "washboard" or deflection.

Brawn and speed for big work-capacity

Nothing less than the husky backbone of an Adams grader could provide the super-strong foundation necessary for applying the tremendous work-power of grader's versa-

tile speed range**. With more "just-right" power-speed combinations than other graders, Adams always works closer to full-rated engine power...digs deeper...pushes more dirt...moves it faster...cuts accurate grades thru toughest ground. Let us show you an Adams in action!

**Four 80 to 150 hp standard-transmission models provide 15 full-power speeds, 0.36 to 26.0 mph, including 3 creeper gears. 190 hp POWER-Flow* 660 with torque converter gives effective work-power of infinite number of forward speeds, 0.0 to 27.4 mph. 60 hp Model 220 has 10 speeds with optional creeper gears...best in its class. This smallest Adams has a strong one-piece front-to-rear frame, section-welded for strength, rigidity, and long life.

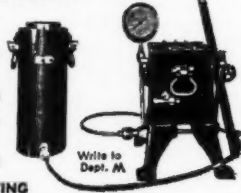
*Trademark G-1502-DC-1

DUDGEON HYDRAULIC JACKS

SALES RENTALS

CAPACITY TO 600 TONS

FOR:
PILE TESTING
UNDER-PINNING
BRIDGES
PIPE PUSHING
SOIL TESTING



Write to Dept. M

DESIGNERS and MANUFACTURERS OF

Hydraulic Units For Special Applications

RICHARD DUDGEON INC. EST. 1830

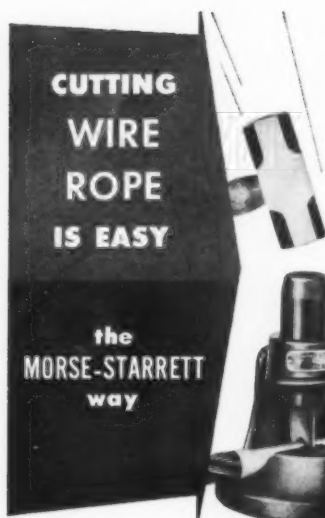
789 BERGEN STREET BROOKLYN, N. Y. ST 9-4040

For more facts, circle No. 305

LeTourneau-WESTINGHOUSE Company
Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company
Where Quality is a Habit

For more facts, use Request Card at page 18 and circle No. 306



**CUTTING
WIRE
ROPE
IS EASY**

**the
MORSE-STARRETT
way**

FAST — Especially designed cutting blade and dies assures fast cutting action. The hammer principle eliminates any special skill requirements.

CLEAN — Wire rope ends are cut smooth and clean for perfect threading or splicing.

SAFE — The enclosed cutting blade locked in the body of the cutter assures perfect safety.

PORTABLE — Models for tool kit or stationary operation. With cutting capacities up to: 1 inch, 1-1/16 inch, 1-1/2 inch.

SEE YOUR DEALER OR
WRITE DEPT. "B"

**MORSE-STARRETT
PRODUCTS COMPANY**

1204 - 49th AVENUE, OAKLAND 1, CALIF.

For more facts, use Request Card at page 18 and circle No. 307

Product Parade



The Littleford pressure-type sprinkler can be equipped with a spray bar from 8 to 24 feet in length. Capacities range to 1,500 gallons.

Water-sprinkling units available in two types

Two types of water-sprinkling units are available from Littleford Bros., Inc. Truck and trailer-mounted units with gravity feed are equipped with 8-foot-long, 2-inch-diameter spray-bars. Pressure-type spraybars are available if desired.

The pressure type, truck-mounted water sprinkler can be equipped with a spray bar from 8 to 24 feet long. Pump size is 2 or 3 inches in diameter, depending on the length of spray bar used.

Capacities for both pressure and gravity-feed types range from 800 to 1,500 gallons.

For further information write to Littleford Bros., Inc., Dept. C&E, 457 E. Pearl St., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 11.

Automatic level features inverted pendulum device

Optical theodolites manufactured by Cooke, Troughton & Simms, of York, England, are announced by the firm's importer and distributor, Precision Instruments, Inc.

Available is the Tavistock theodolite, reading directly to one second of arc; and the V-308, reading directly to 20 seconds and by estimation to 5 seconds.

The Ertel automatic level has an inverted pendulum device that maintains a level optical line of sight when within the limitations of the bull's-eye level. It is said to be small, portable, fast, and durable.

For further information write to Precision Instruments, Inc., Dept. C&E, 1900 Fifth Ave., Troy, N. Y., or use the Request Card at page 18. Circle No. 49.

Wagon drill offers full range of feed pressures

A new, improved wagon drill, said to be larger, easier to use, and more powerful than previous models, is announced by Schramm, Inc.

The drill, designated the Schramm DR-126-A, has many applications: in quarries, for primary drilling and



Long lengths of BETH-CU-LOY speed up installation

One of the beauties of using light-weight drainage pipe made of Beth-Cu-Loy sheets is the long lengths that can be used. By way of example, a 14-ft section of 18-in. diameter pipe made of 16-ga Beth-Cu-Loy weighs but 214 lb, which means that it can be unloaded and placed in the trench without the use of mechanical hoisting equipment. As a matter of fact two men should be able to do the job.

From this it can easily be seen that still larger diameters in still heavier gages can be handled with only the simplest of lifting machinery. And, of course, the long lengths of the sections reduce the number of field joints, and enable the pipe-laying crew to keep right up with the trench diggers. Beth-Cu-Loy field joints are, themselves, a simple and time-saving operation which affords additional economies.

Light though it is, pipe made of Beth-Cu-Loy has the great strength of steel, and the corrosion-resistance of zinc. It is flexible enough to "give" with the fill and help distribute the load around its own periphery. It conforms well to grade and alignment and absorbs impact, vibration and the shifting effect of weather changes.

Beth-Cu-Loy sheets meet the rigid specs of the American Association of State Highway Officials. If you would like further details about Beth-Cu-Loy sheets for drainage pipe, just get in touch with any Bethlehem sales office, or with one of the fabricators using our culvert sheet stock.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



For more facts, use Request Card at page 18 and circle No. 308

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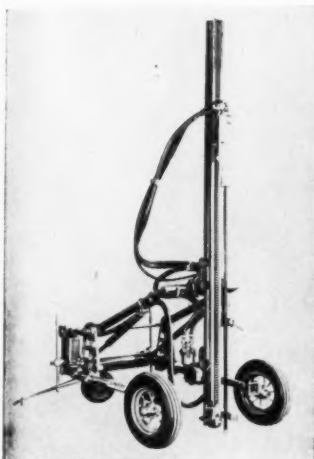
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AUGUST



On the improved Schramm Model DR-126-A wagon drill, supply air can be throttled for an infinite number of pressures.

toe holes; in highway construction, for blasting rock from right-of-way and making riprap and grout holes; in dam construction, for diversion channels, foundations, and grout holes. Mounted on barges, it can be used for underwater pier and caisson drilling. It is also used in drilling and blasting trenches for pipelines, sewers, water, gas, and electric installations.

A standard Schramm 4-inch drifter is employed, with 10-foot feed travel for 8-foot steel changes—an improvement over the previous 8-foot travel for 6-foot steels. As a result, drilling time between changes is extended and delays are minimized, the manufacturer reports.

Supply air can be throttled for an infinite number of feed pressures. Feed chain take-up is said to be new and convenient. A new 2-gallon-capacity line oiler is arranged so that a motor for the U-bar, or any other equipment, can be lubricated.

For further information write to Schramm, Inc., Dept. C&E, 900 E. Virginia Ave., West Chester, Pa., or use the Request Card at page 18. Circle No. 7.

Boom indicator increases operator effectiveness

A boom spot indicator, designed as an added safety factor and to increase operator effectiveness in all phases of boom rig operations, is announced by Viking Instruments, Inc.

The indicator is said to be adaptable to all types of boom rig cranes. Mounted in the cab house, it is controlled by a cable attached to the boom, which gives the operator a numerical reading of the boom angle.

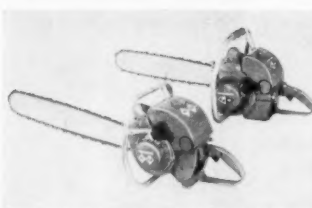
An integral signal light unit provides a red flasher warning when the boom is about to enter the danger zone. This added feature is said to be of special advantage in delicate spotting operations where the operator's attention is concentrated on his working load.

For further information write to Viking Instruments Inc., Dept. C&E, 400 Towne St., E. Haddam, Conn., or use the Request Card at page 18. Circle No. 124.

New 6-hp chain saws are compact, lightweight

Two chain saws, Models 6-22 and EZ-6, are announced by the Homelite Corp. Called the Homelite Power Twins, both saws have 6-hp engines. The EZ-6 is a direct-drive, 19-pound unit; the 6-22 is a gear-drive unit weighing 22 pounds.

Both models are equipped with diaphragm carburetors designed to permit cutting in any position, with-



The Homelite Models 6-22 and EZ-6 lightweight, 6-hp chain saws are equipped with diaphragm carburetors.

out adjustments or loss of power.

The high-compression, short-stroke design reduces engine wear, according to the manufacturer.

For further information write to Homelite Corp., Dept. C&E, 71 Riverdale Ave., Port Chester, N. Y., or use the card at page 18. Circle No. 2.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.



How tractor work-and-run mobility

puts dollars in your pocket

17 mph LeTourneau-Westinghouse Tournatractor®, rolling on big, 2' wide, low-pressure tires, is never more than a few minutes away from its next assignment anywhere in your work area. There's no delay... no waiting for truck and trailer... no loading or unloading... no extra equipment or manpower expense. Operator just hops on, shifts into high, and he's on his way!

Takes shortest route to any job

Tournatractor always takes the shortest route—via road or cross-country. It travels over blacktop, city streets, sidewalks, curbs or RR tracks... without planking. Big (5'11" high), low-pressure tires spread to distribute the load... flex, and roll easily over obstacles.

Puts "wait-time" to work

When your Tournatractor gets caught up with its present assignment, there's no need to let it sit idle. Let its high-speed mobility pay off for you. Send this rubber-tired tractor to handle scattered odd jobs anywhere in the area. Use it for fast push-loading or towing... for heavy dozing to improve haul-roads, detours, or drainage. In addition, unit's rubber-tired mobility lets you move freely from wet to drier work areas... to fill in with profitable small jobs between big-job assignments. You'll find there's nothing like Tournatractor for handling more work over a wider area—without excessive tractor moving expense.

Provides quick emergency service
In only 10 minutes, mobile Tourn-

atractor can be handling a critical dirtmoving task 2 miles away. With mobility like this, you can always be sure of prompt help... when and where you need it. This quick emergency service—plus Tournatractor's flexibility of application for helping out and speeding up any behind-schedule operation—can save you thousands of dollars on a single contract. Also, machine gives greater efficiency on over-all operation, and can cut valuable days from your completion dates.

Meets all 4 dimensions

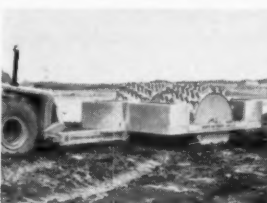
Besides mobility, Tournatractor has ample ability to meet the other 3 essential dimensions of today's earthmoving... power, traction, and speed. Write for free 32-page illustrated bulletin, "All 4 dimensions".

CT-1463-DC-1

Optional attachments increase Tournatractor's range of application



ANGLED OZER®—four-way adjustment permits angled blade to be tilted up and down on either corner—forward or back on either side. Excellent for side-hill work.



SHEEP'S FOOT ROLLERS—L-W tractor easily tows two or four-drum roller units. Tournatractor's big tires help complete specified compaction in fewer passes.



POWER-CONTROL UNIT—rear-mounted doubled-drum PCU enables Tournatractor to operate any cable-operated scraper. Also powers other cable-type equipment.



BUMPER AND PUSH-PLATE—for pusher duty. Heavy, all-steel welded push-plate is 4'5" wide and 3'4" high. Full width bumper is 3" thick, 16" high, curved at ends.



LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

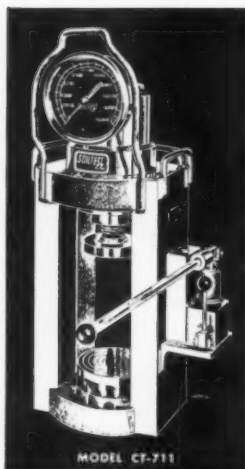
For more facts, use Request Card at page 18 and circle No. 309



CONCRETE TESTING AT THE JOB SITE

Where roads, bridges or buildings are under construction, the new, portable CT-711 CONCRETE TESTER is an invaluable aid in saving time, money and materials . . . by bringing laboratory testing precision to all working locations.

CUBES • CYLINDERS • BEAMS
CAPACITY TO 200,000 POUNDS



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Incorporated

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4711 WEST NORTH AVENUE • CHICAGO 39, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 314

Product Parade

The angle dozer attachment for the Davis loader can be offset 7 inches to either side of center.



Dozer attachment has special angling device

An angle dozer attachment for the Davis loader is announced by Mid-Western Industries, Inc.

The attachment has a special angling device as well as three offset adjustments. By pulling two pins, the dozer unit can be offset 7 inches to either side of center, permitting the operator to backfill by shaving in the dirt while running parallel to the ditch.

The tilt and bite of the blade is hydraulically controlled. The attachment is said to be ideal for cutting and cleaning ditches and, with its 28-inch moldboard height and 72-inch width, for all ordinary types of ditch backfilling.

For further information write to Mid-Western Industries, Inc., Dept. C&E, 1009 S. West St., Wichita, Kans., or use the Request Card at page 18. Circle No. 8.

New line of elevated circular storage bins

A new line of elevated circular storage bins of 30 to 200 tons capacity, fitted with gates for discharge into trucks, is announced by The Fairfield Engineering Co.

Fairfield bins of the new CB series are from 12 to 20 feet in diameter, have drive-through widths of 12½ to 20 feet, and are mounted on 8-foot legs resting on concrete piers. Larger sizes are available, however.

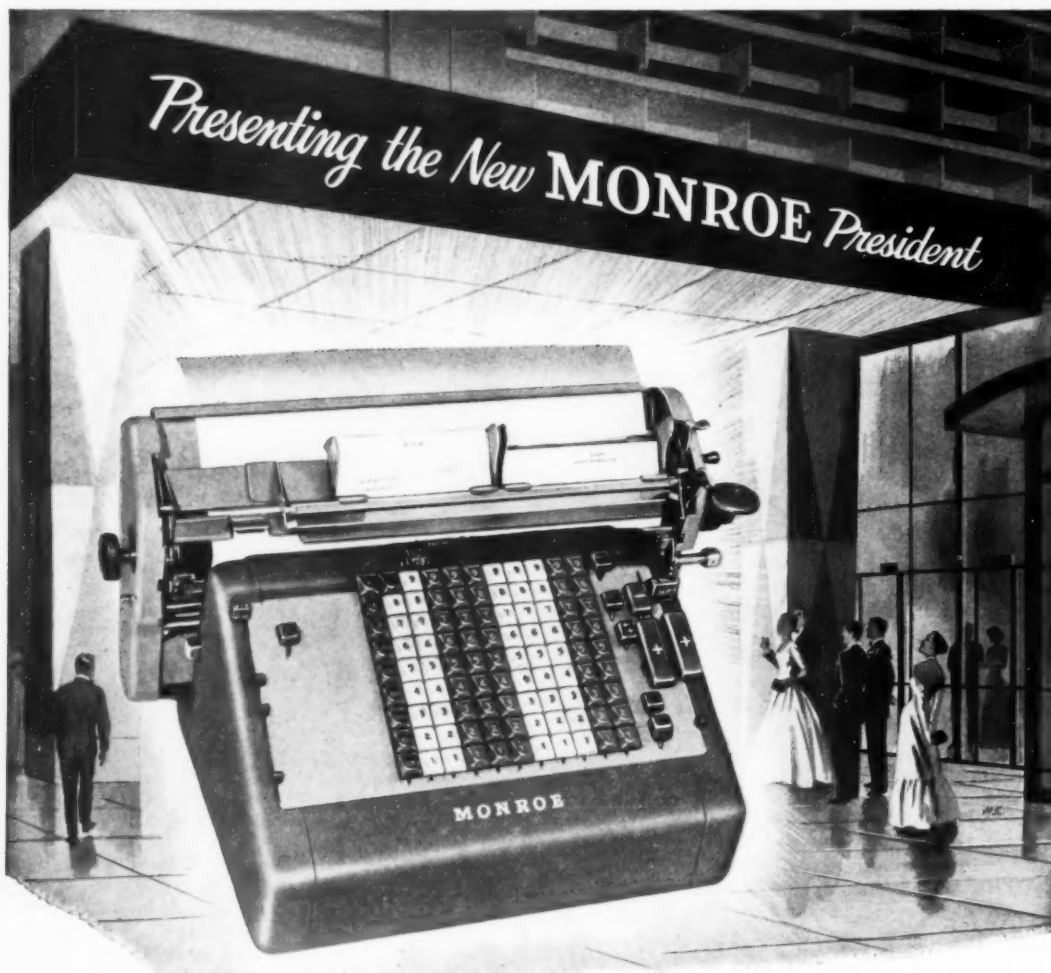
Standard equipment includes single-quadrant manually operated gates controlled from ground level. Double-quadrant air-operated gates are optional.

For further information write to The Fairfield Engineering Co., Dept. C&E, 324 Barnhart St., Marion, Ohio, or use the Request Card at page 18. Circle No. 90.

Offer power float kit for troweling machine

A power float for stucco base coats, interior sand finishes, and acoustical plaster, is available from the E-Z-On Corp. Furnished as an accessory kit to the E-Z Trowel, the float operates on 110-volt, 60-cycle ac.

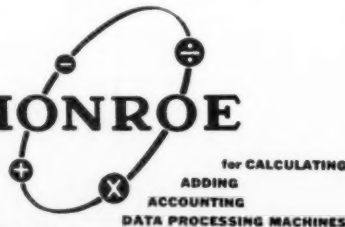
The float consists of a rotating back plate said to be quickly interchangeable



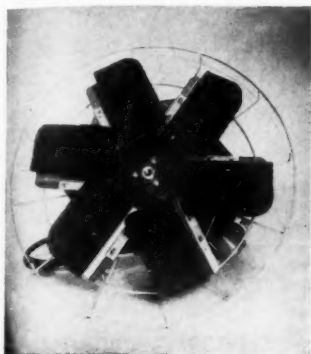
Now BIG Business Bookkeeping at a SMALL Business Price!

With its stunning new President model, Monroe introduces more than a new accounting machine . . . Monroe establishes an entirely new ratio between what you pay and what you get in machine accounting. Now, for the first time, *any* business can enjoy all the benefits of *big business bookkeeping* at a price actually hundreds of dollars less than before! And job changing flexibility is built right into every model in the President line. With the flick of a knob accounts receivable, payroll, cost control, accounts payable . . . all become mechanized operations. Look at the price tag on this machine. Then put your own price tag on what machine accounting can do for you. Speed receivables by getting statements out faster. Build prestige with neat looking records. Put credit data at your fingertips. Control your work so it flows easily and always accurately. Write or telephone Monroe Calculating Machine Company, Inc. General offices: Orange, N. J. Offices throughout the world.

See the MAN from **MONROE**



For more facts, use Request Card at page 18 and circle No. 315



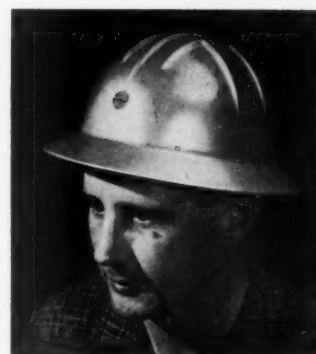
Aluminum safety hat high in impact resistance

An aluminum safety hat, said to exceed federal specifications for construction workers' hats in both impact resistance and penetration strength, is available from Jackson Products.

According to the manufacturer, the six-point suspension headgear is a soft and pliable unit, shock absorbent, and comfortable. It is buttonholed inside the hat shell for easy removal.

The headband with clearly marked hat sizes is fast and easy to adjust. Chin straps and winter liners are available.

For further information write to Mr. B. C. Lee, Distribution Manager, Jackson Products, Dept. C&E, 31739 Mound Road, Warren, Mich., or use the Request Card at page 18. Circle No. 54.



able with other troweling blades by unscrewing one set of blades from the trowel and screwing on the float. Mounted on the back plate are six rubber float pads which are glued to individually mounted flexible steel blades. A wide variety of float fixtures is available.

When operating the power float, the rotating speed of the trowel is reduced to prevent throwing sand. This is accomplished with a 4-position 60-cycle ac speed control, also furnished.

For further information write to E-Z-On Corp., Dept. C&E, 1725 W. Pershing Road, Chicago 9, Ill., or use the Request Card at page 18. Circle No. 76.

Life jacket turns, keeps wearer face up in water

A new, improved version of the firm's life jacket for the protection of men who work in or near the water is announced by General Textile Mills, Inc.

This patented device turns the wearer over in the water, face up, at a proper floating angle. Even if stunned, unconscious, or otherwise



unable to swim, the wearer will stay afloat, the manufacturer claims.

Of molded plastic foam construction, the GenTex life jacket is said to better all safety-standard requirements for lasting buoyancy. Because it is non-absorbent, it cannot become waterlogged. The jacket is not affected by wetting or by exposure.

Due to its slipover design and adjustable, grip-buckle side strap, the GenTex life jacket reportedly is easy to slip on and off, yet holds securely in place and cannot come loose.

For further information write to General Textile Mills, Inc., Dept. C&E, 450 Seventh Ave., Dept. P-1, New York 1, N. Y., or use the Request Card at page 18. Circle No. 14.



In restricted areas, Rear-Dumps outmaneuver, outproduce ordinary haulers

For fast maneuvering in confined loading areas... hauling heavy materials over poorly-graded winding roads, and dumping safely over high embankments... investigate the advantages of heavy-duty Tournapull® Rear-Dumps.

Short turns speed loading cycle

Take the 22-ton "C" Rear-Dumps, for instance... middleweights in the LeTourneau-Westinghouse line. In confined loading areas, where width of footing is limited, "C's" short 28'8" turn in haul position (only 20'8" in dump position) comes in mighty handy. It enables operator to maneuver safely and easily... spot fast under dipper. Compare this tight-turn ability with that of ordinary dump trucks in the "C's" tonnage hauling class.

Also, 'Pull's low rear-entry (5'8") lets shovel operator swing bucket in and out of bowl at low dumping heights. Shovel can heap a good load in a hurry, with minimum spillage.

3,762 sq. in. of brake surface

Multiple-disc air brakes on all 4 wheels give 3,762 sq. in. of braking surface... provide ample safety for downhill haul.

A special safety feature for hilly work areas is the optional *Electrotarder*. It provides auxiliary non-wear, electric-resistance braking through generator on drive-shaft... virtually slows machine to a "walk" without braking.

Dumps fast, safely... keeps firm footing

To dump, operator wheels and spots fast at edge of target area. Setting independently-controlled rear-wheel brakes only, he activates electric hoist motor to raise body into "dump" position. As body raises, wheelbase shortens... swinging bowl below and between rear wheels. This keeps rocks, stones, etc., from piling under hauler or against rear wheels during dump. Front-wheel drive keeps power and traction on solid footing, well ahead of rear wheels.

Rear-Dumps have 4-way built-in protection against bogging down: 1) Power-transfer differential automatically transfers most of the power from slipping wheel to wheel on firm footing. 2) Power-steer through geared kingpin "walks" prime-mover out of ruts—should both drive wheels bog down. 3) "Hump" action, in dumping, brings rear wheels forward as body raises, pushes front wheels forward as bowl is lowered, to inch hauler out of soft footing. 4) Big, low-pressure tires on all wheels float over, don't dig into loose materials, keep traction always.

Interchangeability adds profits

Tournapull Rear-Dump's "bonus" is its interchangeability feature. Rear-Dump body can be easily switched with 18-cu. yd. scraper, 20-ton flat-bed hauler, bottom-dump or crane. Change-

At this quarry, C Tournapull Rear-Dumps are loaded with rock and overburden by a large-capacity shovel. Here the machine's big air-brakes, simple electric controls, positive power-steer, and 90° turning radius, enable it to spot fast under the dipper, maneuver safely and easily over boulder-strewn surfaces.

'Pull's operator backs "C" right up to edge of embankment. Streamlined bowl sheds material readily, clear over bank. Clean unloading cuts costs for dozer cleanup. Front-wheel drive permits fast, safe getaway after dump.



over, using same 2-wheel prime-mover, takes just a few hours.

Increase your earning power with this interchangeable unit. Handle more work at a profit... all year-around! There's a Rear-Dump size... 11, 22 or 35 tons... to match the capacity of your shovel. Ask for details.

CR-1205-DC-1



LeTourneau-WESTINGHOUSE Company
Peoria, Illinois

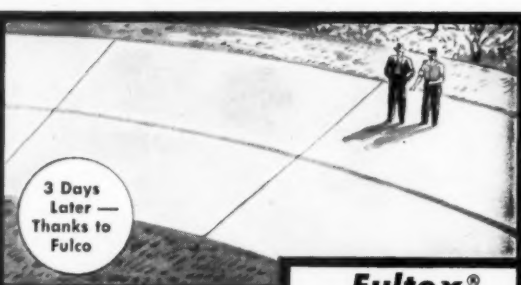
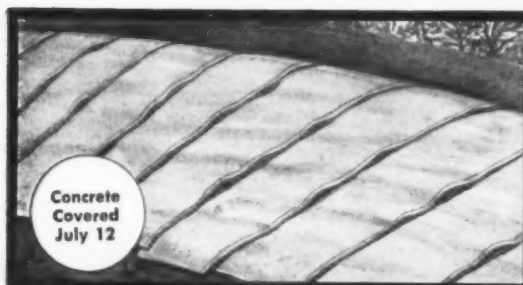
A Subsidiary of Westinghouse Air Brake Company
Where Quality is a Habit

For more facts, use Request Card at page 18 and circle No. 316



A heavy-duty drilling job was accomplished recently by the Raymond Concrete Pile Co., of New York, when hundreds of core samples were taken from the rubble stone foundation of a large government building in Washington, prior to extensive underground construction in the area. The power unit of the rig used was a Black & Decker 1 1/4-inch heavy-duty electric drill. The unit powered a 1 3/4-inch diamond bit both horizontally and vertically through thick stone walls with an average drilling time of 2 minutes 40 seconds for each foot of granite core retrieved. Each diamond bit cut 130 feet or better. The drill held up for the entire job, with no defect in its performance noted. For further information about this power unit, write to Black & Decker Mfg. Co., Dept. C&E, E. Pennsylvania Ave., Towson 4, Md., or use the Request Card at page 18. Circle No. 91.

NOW! Cure Concrete a Full Week Faster with FULCO Concrete Curing Mats



Can be Re-Used
Up to 75 times!

No more waiting 10 long days to set concrete with wet-burlap-wet-earth method. No more tying up of costly materials. Fulco does the job in 3 days flat! Does it better, too! Fulco Mats stay wetter longer and with less water. They increase the compressive strength of concrete, insulate against sudden temperature changes to produce a more uniform job. And because they can be re-used so often, they cut cost-per-job to the bone.



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For more facts, use Request Card at page 18 and circle No. 317

SAVE THOUSANDS! UNUSED 6x6 ARMY TRUCKS

*2 1/2-TON, GMC &
INTERNATIONAL



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For more facts, circle No. 310



Harbormaster . . . work horse of the waterways

If you need easily installed power, better steering control, safety in shallow water, easier maintenance, more efficient performance, simpler hull design, more cargo space, bigger payloads, or simplified crew operation . . . you should investigate the benefits of Harbormaster Outboard Propulsion and Steering. Harbormaster is a complete power and steering package. It is powerful and highly maneuverable and has wide application in shallow or deep water, for coastwise service as well as in harbors, lakes, canals, and rivers.

Send for catalog giving complete information and showing Harbormasters in action . . . or if you have a problem our marine architect will make recommendations without obligation.

MURRAY & TREGURTHA, Inc.
44 Hancock St., Quincy 71, Massachusetts

For more facts, circle No. 318

Lightweight hand pump has continuous action

A new double action push-pull hand pump is announced by The Wayne Pump Co.

The pump, called the DD-1, is said to dispense liquids of almost any viscosity, including cutting oils, lubricating oils, transmission grease, paints, solvents, and chemicals. According to the manufacturer, it assures safe, dry working areas where oily, sticky liquids are transferred by eliminating the spilling, dripping, and over-filling usually prevalent when small containers are filled by drawing, pouring, or siphoning.

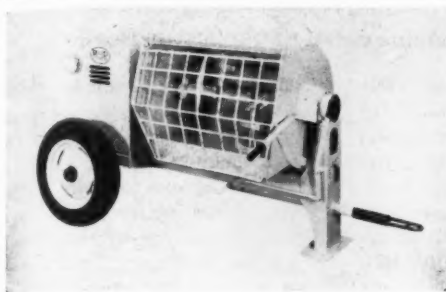


Weighing only 6 pounds, the lightweight DD-1 pumps 20 gallons per 100 strokes of the pump. Pumping action is continuous with both the push and pull strokes delivering. The average total rated operating pressure is 25 psi.

Especially designed to meet any pumping requirements, the DD-1 can be supplied as a pump only, or as a barrel pump or a pedestal pump. Special Buna N self-spring loaded internal valves allow the pump to be installed in any position, including upside down when flow is to be reversed. More than 20 assemblies are possible from the basic designs. A few changes in application accessories quickly convert the pump to almost any installation.

For further information write to The Wayne Pump Co., Dept. C&E, Fort Wayne, Ind., or use the Request Card at page 18. Circle No. 22.

CONTRACTORS AND ENGINEERS



The new Muller Machinery mixer handles 3 bags of mortar or 4 bags of lightweight plaster.

Plaster and mortar mixer handles 12 cubic feet

A trailer-type plaster and mortar mixer with a 12-cubic-foot capacity is announced by Muller Machinery Co., Inc.

Designed to handle 3 bags of mortar or 4 bags of lightweight plaster, the Muller mixer is equipped with a Wisconsin air-cooled engine, rated at 12 horsepower at 2,000 rpm. The engine has built-in reduction gears running in oil. The engine housing is of the two-piece type, hinged for easy accessibility to engine and transmission, the firm states.

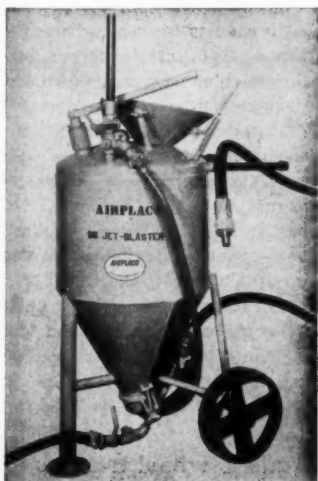
According to the manufacturer, the mixing drum is balanced to tilt with the least possible effort, and uses the normal direction of the mixing blades to discharge the batch.

For further information write to Muller Machinery Co., Inc., Dept. C&E, P. O. Box 248 Metuchen, N. J., or use the Request Card at page 18. Circle No. 139.

Sand blasting unit has adjustable flow control

The introduction of the new Model B6 portable Jet-Blaster, a sand blasting machine, to its product line is announced by the Air Placement Equipment Co.

The Jet-Blaster has a 650-pound capacity, handles conventional abrasive materials, and has an adjustable



flow control. Suggested applications of the machine include the removal of corrosion, paint, concrete, or scale.

A nozzle for wet sand blasting and remote controls are also available.

For further information write to Air Placement Equipment Co., Dept. C&E, 1009 W. 24th St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 146.

Broom cores furnished without filler material

Broom cores without bristles for those who want to fill their own are available from the Van Brush Mfg. Co.

The unfilled cores are furnished already wound with flexi-strand steel wire cable and wrapped in burlap.

Filler materials available include India palmyra stalks, African Calabar bass, and hickory fibers.

For further information write to



Van Brush Mfg. Co., Dept. C&E, 327 Southwest Blvd., Kansas City, Mo., or use the Request Card at page 18. Circle No. 25.

HAUL ROADS
.8 mile-10 mph speed limit

18% GRADE

FILL

18% GRADE

CUT

5% GRADE

Haul and return route taken by Tournapulls. Narrow—with sharp, hairpin curves and 18% grades—this road would have been very difficult for any but 90° turn electric-steer D Tournapulls.

Grading for new oil refinery in Mo., one of Midwest Pre Cote's 6 D Tournapulls gets heaped 7½-yd. load of sandy clay in approx. 200'... hauls and returns over twisting, hilly 1.7-mile cycle.

How Midwest Pre Cote

beat 18% grades and long twisting haul road

at new oil refinery plant

To keep up with demands for improved motor fuels, created by millions of modern automobiles, a large oil company is putting into operation a new alkalization plant at Sugar Creek, Missouri. Midwest Pre Cote Company of Kansas City, Mo.—with their six LeTourneau-Westinghouse D Tournapulls—were given the job of moving 85,000 yds. of sand and clay, grading the plant area, building railroad rights-of-way and grading storm sewers.

Narrow haul road—18% grades

Equipped with built-up tailgates and sideboards, Midwest Pre Cote's fast D 'Pulls loaded approximately 7.5 cu. yds. in 200 feet, push-loaded by a 102 hp crawler tractor. The loaded machines then traveled up a 5% grade out of the borrow area. The .8 mile haul road was so narrow and twisting that it permitted only one-way traffic. Heaped loads were spread in thin even layers along a 600' area.

The haul road circled and climbed over grades as steep as 18%. With electric geared kingpin steer, maneuverable "D's" negotiated sharp curves and hairpin turns without difficulty or loss of time. Tournapull's easy maneuverability really paid off for Midwest Pre Cote in steady, profitable production on this job.

6 'Pulls 96.84% efficient

Detailed reports kept by the owner show that entire fleet of six Tournapull scrapers have operated with 96.84% efficiency on this job. The two newest machines have averaged 98.89% for their 822 working hours.

"D 'Pull can't be beat"

Foreman Carl Barnett says, "The dependability of the D 'Pulls can't be beat. On a job like this, with six machines working, there isn't any lost time on the pusher waiting to load." The Superintendent, C. P. Daniells, said, "We are very well satisfied with

the machines, and are one of the big users of LeTourneau-Westinghouse equipment in the Kansas City area."

New "D" narrower, with added capacity

An improved D Tournapull is now available. Only 8 feet wide, the new "D" meets 9-ton axle-limit and may be roaded anywhere without special permit. This earthmover has a capacity of 7.3 cubic yards struck and 9 cubic yards heaped.

D 'Pulls will fit your earthmoving needs

Profits in the expanding earthmoving industry will go to contractors who have their equipment fleets always "ready to go"—with the best equipment available. It will be to your advantage to find out how D Tournapulls can increase your dirtmoving capacity and profit possibilities. Ask for full details.

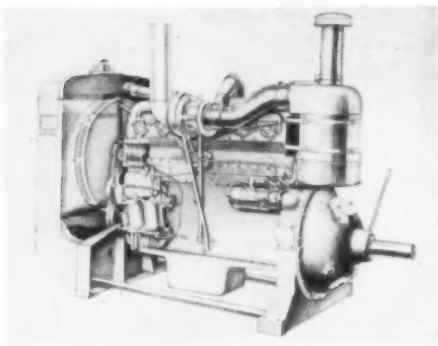
Tournapull—Trademark Reg. U.S. Pat. Off. DP-1202-B-b



LeTourneau-WESTINGHOUSE Company
Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company
Where Quality is a Habit

For more facts, use Request Card at page 18 and circle No. 319



Lower fuel consumption and higher power with lower exhaust gas temperatures are claimed for the new 250-hp Turbotorque Model UDT-1091.

New turbocharged engine rated at 250 horsepower

Its new 250-hp Turbotorque UDT-1091 power unit is announced by the Construction Equipment Division of the International Harvester Co. This 250-brake-horsepower rating is attained at 1,500 rpm, an increase of 50 horsepower over its naturally-aspirated counterpart, the UD-1091.

The 6-cylinder unit's exhaust gas driven AiResearch turbocharger is said to move 60 per cent more air through the 14-inch-diameter air cleaner. This boost in air supply to the cylinders results in lower fuel consumption and higher power with lower exhaust gas temperatures, ac-

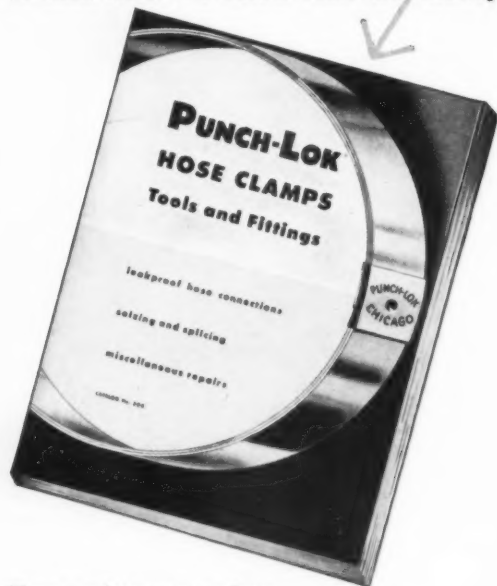
cording to the manufacturer.

A water-cooled oil temperature stabilizer is standard equipment on the new unit. The radiator has been enlarged to increase cooling capacity.

The increased horsepower, together with an extra-large counterbalanced crankshaft and heavy flywheel, assures stall-prevention at peak loads, the manufacturer claims.

For further information write to Construction Equipment Div., International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 89.

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New 12-page Data Book
It tells **HOW TO SAVE** Time and Money



Every maintenance engineer in industry and construction should have this complete compilation of data on the application and use of Punch-Lok Hose Clamps... the perfect clamp for...

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SNOWED UNDER? MONARCH Controls Your Plow ... automatically!



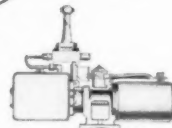
JEEPS



TRUCKS

POWER **MONARCH** HYDRAULIC CONTROL

Snow removal is fast, dependable and safe with Monarch Power Hydraulic Control Equipment... cab-controlled for one-man instant action, the Monarch zips snow plows into operation with ease and speed. Fan-belt driven or Electric models are available for practically all makes of vehicles. Proven in service everywhere, over 50,000 Monarch Controls have been sold. See your dealer or write for full details.



The Monarch DYNAMIGHT Model HEP (as illustrated) combines all parts in one package for ready installation on new or existing equipment.

MONARCH
ROAD MACHINERY COMPANY
1331 MICHIGAN STREET, N.E., GRAND RAPIDS 3, MICHIGAN
For more facts, circle No. 321

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Dept. 53608, TOWSON 4, MD.

Black & Decker®
QUALITY ELECTRIC TOOLS

For more facts, circle No. 322

Offer improved pump with higher capacity

A newly improved, heavy-duty self-priming pump which gives much higher capacity than the previous model has been introduced as part of the complete line of centrifugal and diaphragm pumps manufactured by McGowan Pumps.

Replacing the former 15M, the new 15,000-gph model uses an improved



The new McGowan Model 15M pump is rated at 15,000 gph.

springloaded lubricator for the seal, that needs less frequent attention in operation. It is easy to start and requires a minimum of maintenance, the manufacturer reports.

The pump's case has been redesigned for greater hydraulic efficiency. Corners have been eliminated to provide less turbulence and smoother flow. The pump is available wheel-mounted, and can be furnished with a high-speed trailer hitch.

For further information write to McGowan Pump Div., Leyman Mfg. Co., Dept. C&E, 58 Central Ave., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 144.

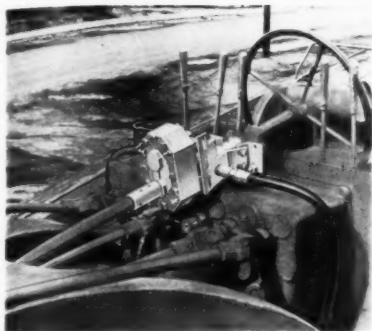
Graders, wheel tractors for power steering unit

A hydraulic-powered steering booster incorporating control valve and power section in one compact housing is announced by the Precision Controls Co.

Called Gyde-Master, the unit mounts in the steering shaft of a vehicle and provides steering control by applying torque to the steering

CONTRACTORS AND ENGINEERS

Product Parade



The Gyde-Master power-steering unit is available for several makes and models of both motor graders and wheel tractors.

shaft. It can be connected into and operated by the vehicle hydraulic system, provided the vehicle system is suitable.

Mechanical steering is preserved through the Gyde-Master so that steering can be continued should hydraulic power fail.

Designed initially for accessory installation on existing vehicles, Gyde-Master is said to be equally suitable as original equipment on new machines. Mountings are available for motor graders including the Adams 400 and 500 series; Allis-Chalmers D, AD 3 & 4, and BD 2 & 3; Caterpillar 12 and 112; and for most makes and models of wheel tractors—Ford, Oliver, John Deere, Massey-Harris, Minneapolis Moline, International Harvester.

For further information write to Precision Controls Co., Dept. C&E, 5038 Chowen Ave. S, Minneapolis 10, Minn., or use the Request Card at page 18. Circle No. 141.

Offer fork truck for off-the-road handling

A pneumatic-tire model with a 7½-ton capacity has been added to the Clark Equipment Co.'s Ranger line of fork trucks for off-the-road handling.

Designated the Ranger 150, the unit has both 4-wheel drive and 2-wheel drive obtainable by manipulation of a selector lever. The power train combines a torque converter with 3 to 1 multiplication with a 4-speed, power-shift transmission. A 95 net belt horsepower gas engine or 102 net belt horsepower diesel engine is available.

If one wheel should spin on uneven terrain, a differential locking device, actuated by a foot pedal, locks out the differential action, permitting all wheels to receive equal turning power. An oscillating rear axle permits either rear wheel to ride over a 16-inch obstruction without any wheel, front or rear, losing ground contact, according to the manufacturer.

Specifications and dimensions of the Ranger 150 include a top speed of 25 mph in both forward and reverse; under-clearance of 14 inches; turning radius of 312 inches; wheelbase of 108 inches; length, less forks, of 210 inches; width of 102 inches; and empty weight of 26,740 pounds.

For further information write to Industrial Truck Div., Clark Equipment Co., Dept. C&E, 1952 Circle Drive, Battle Creek, Mich., or use the Request Card at page 18. Circle No. 138.

For more data on any item, circle indicated number on card at page 18.



CUT COSTS—SAVE HIGH RENTAL CHARGES!

**REVOLUTIONARY, ALL NEW
WARNING LIGHT!
DUO TRANSISTORIZED SAFETY**

**BRIGHTER LIGHT • LONGER DWELL • YEARS OF
DEPENDABLE SERVICE • GREATEST ECONOMY—
LESS THAN 2¢ A DAY TO OPERATE • RUGGEDIZED
STEEL CONSTRUCTION • NO FIRE OR EXPLOSION
HAZARD • USES LATEST FILAMENT TYPE BULB**

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PRICE \$19.95
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**TAMPER
PROOF MOUNTING**
Special tool furnished.
Easily installed on any
standard barricade.

90° SWIVEL HEAD
Light in any direction.

**ONLY GARDRITE HAS, THE HERMETICALLY SEALED
TRANSISTORIZED FLASHER—HEART OF THE GARDRITE
FOR YOUR FULL PROTECTION
• WEATHERPROOF • WILL
OPERATE UNDER WATER**

**WRITE FOR FOLDER
5 YEAR GUARANTEE**



ELECTRADE CORPORATION

2617 Walnut St., Kansas City 8, Mo.
Phone Victor 2-8519

For more facts, use Request Card at page 18 and circle No. 323



Central McConnaughay Laboratory
at Lafayette, Indiana

**For Fast, Dependable Service on Emulsified
Asphalt... Check These Convenient Sources**

FROM Canada to the Gulf...from the Atlantic to Iowa...you can be sure of fast, dependable service on asphalt emulsions and mixes by calling any of the McConnaughay Licensees listed below. This co-ordinated group, guided by a central organization, is made up of experienced manufacturers and contractors who fully understand your problems, offer extensive engineering and testing services on paving materials and mixtures as well as on-the-job advice. Take advantage of this exceptional service. If you are figuring on highway, street, or general paving, get in touch with your nearest McConnaughay Licensee or contact the main office.

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

1—Penetration Macadam, 2—Open-Graded Plant Mix, 3—Open-Graded Road Mix, 4—Dense-Graded Plant Mix, 5—Dense-Graded Road Mix, 6—Mat Coat, 7—Seal Coat, 8—Sand Mix, 9—Sand Honing, 10—Patching, 11—Mastic-Mix, 12—Driveway Construction.

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Wabash Valley Asphalt Co.
Terre Haute
Walsh & Kelly
R. R. No. 2, Gary
Brookman Construction Co.
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Lafayette
Asphalt Materials & Construction, Inc.
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Knight Paving Products, Inc.
1980 East Avenue, Rochester 10
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Albany Asphalt & Aggregates
75 State St., Albany
Bimasco Pavements, Inc.
Roslyn Asphalt & Materials Co.
Landing Road, Roslyn, L. I.

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2700 Industrial Drive, Columbia

TENNESSEE
Asphalt Products Co., Inc.
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K. E. McCONNAUGHAY LAFAYETTE
INDIANA
EMULSIFIED ASPHALT PLANTS AND PROCESSES

For more facts, use Request Card at page 18 and circle No. 324

Concrete bucket offers new automatic features

A concrete bucket that dumps itself at a controlled pouring rate automatically is offered by the Tusky Hoist Division, Tubular Structures Corp. of America.

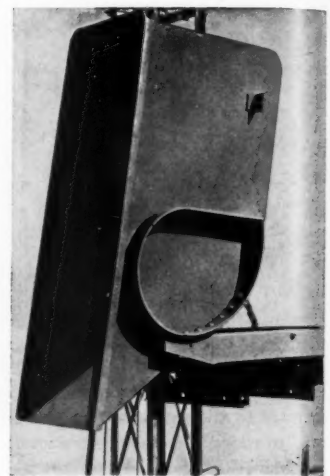
Available as an accessory for the Tusky automatic portable hoist, the 13-cubic-foot bucket may be used at heights up to 100 feet. According to the manufacturer, the new bucket dumps at any pre-set level, automatically, yet partial dumping is easily controlled when desired.

The bucket may be started up or down from the ground or from any

The new Tusky 13-cubic-foot bucket dumps itself automatically at a controlled pouring rate.

working height along the full length of the mast. This may be done from either side of the tower by a simple tug on the control cable.

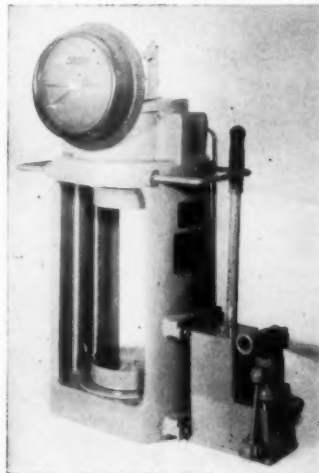
For further information write to Tusky Hoist Div., Tubular Structures Corp. of America, Dept. C&E, 2960 Marsh St., Los Angeles 39, Calif., or use the Request Card at page 18. Circle No. 78.



Portable concrete tester has 125-ton capacity

A 125-ton-capacity portable concrete tester that can apply controlled loads up to 8,850 psi on standard 6x12 concrete cylinders is announced by Forney's Inc.

Weighing no more than the firm's



100-ton-capacity tester, the new Model FT-25 features a Bourdon tube gage with an 8-inch-diameter dial calibrated in pounds 0 to 250,000, with 500 pound sub-graduations, as standard equipment.

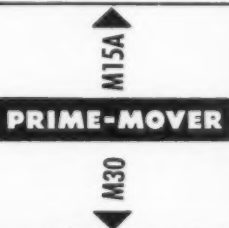
Available as standard accessory equipment are metric gages, and apparatus for testing 2x2-inch and 6x6-inch cubes, 8x8x16-inch blocks, and beams up to 40 inches long by either center or third point loading. A constant flow electric pump is also available.

For further information write to Forney's Inc., Dept. C&E, 209 Elm St., New Castle, Pa., or use the Request Card at page 18. Circle No. 101.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.



PRIME-MOVER M15A FOR BUILDING CONSTRUCTION Places 12 to 17 cu. yds. of concrete per hour on school, hospital and commercial projects — without extensive preparations for its use. Runs on same type of ramps, hoists and runways as hand carts. Available with flatbed, or 10 cu. ft. bucket.



FOR HIGH VOLUME, LOW COST PLACING OF CONCRETE AND OTHER BULK MATERIALS — USE PRIME-MOVER POWER!



PRIME-MOVER M30 FOR ENGINEERED CONSTRUCTION

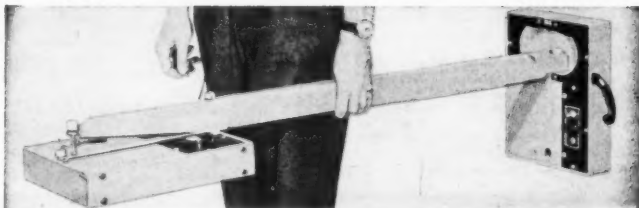
Hauls $\frac{2}{3}$ yard or 1-1/2 tons. Unloads transit mixers fast. Spots concrete right where it's needed on plant, warehouse, pier and bridge construction. Hydraulic Torque Converter Drive frees the operator from shifting, clutching and wasted effort. Rugged, dependable. Bucket and flat bed.

FOR COMPLETE DETAILS WRITE TO PRIME-MOVER CO., MUSCATINE, IOWA
For more facts, use Request Card at page 18 and circle No. 325

The WILKINSON LINE LOCATOR WILL SAVE ITS COST ..MANY TIMES OVER

It accurately spots every sub surface pipe, cable, etc. and indicates their depth. Power sufficient for the most difficult locating. Etched circuitry, instead of old-type hand wired. A built-in battery tester indicates battery condition instantly.

Save trouble, time, and expense. Equip with the Wilkinson Line Locator.



WILKINSON PRODUCTS COMPANY
3987 Chevy Chase Drive — Pasadena 3, California — SYLvan 0-4314

For more facts, use Request Card at page 18 and circle No. 326

RICHMOND

- HANGERS**
for decks
- SCREEDS**
for decks
- TYSCRUS**
for walls
- REINFORCING BAR SUPPORTS**
for steel support
- SCREW ANCHORS**
for false-work support brackets
- CONTINUOUS-THREADED LAGSTUDS**
for columns and utility use

Every contractor on the Connecticut Thruway used Richmond products

In the roadbuilding field, where time is money, concreting contractors rely on Richmond to save both. Richmond products are often a major factor in the profit and loss picture.

You buy 46 years' experience when you specify Richmond products. The current handbook fully describes the entire Richmond line. Write for it, to: **RICHMOND SCREW ANCHOR COMPANY, INC.**, 816 Liberty Avenue, Brooklyn 8, New York or 315 South Fourth Street, St. Joseph, Mo.

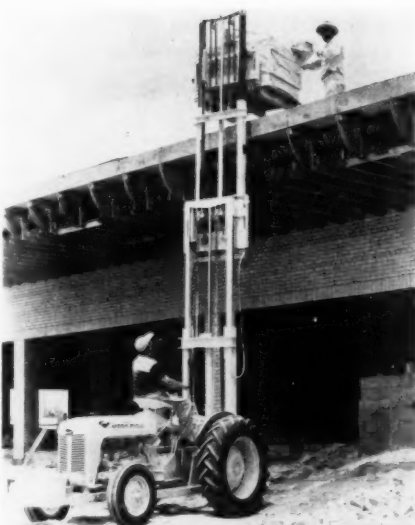


For more facts, circle No. 327

CONTRACTORS AND ENGINEERS



An estimated savings of \$5,000 was made recently on a drilling job at a Denver utility service plant. After a 52-inch slab was in place, an engineering design change called for a 5-inch hole through the concrete. Instead of tearing out and replacing the slab, the contractor used a 1½-hp Truco portable drilling machine and Truco swivel diamond drill bit. Not only was the concrete reinforced with steel bars to 1½ inches in diameter, but it contained one upright rod of steel, located so that the drill had to split the rod from end to end the entire length of the hole. Actual drilling time was 3 hours. Cost of the operation, about \$120. For further information about Truco drilling equipment, write to **The Wheel Trueing Tool Co.**, Dept. C&E, 3200 W. Davison St., Detroit, Mich., or use the Request Card at page 18. Circle No. 61.



Material lifts up to 21 feet are made by the Work Bull Model 202 with mast extension. The unit can travel with equal ease on any terrain, the manufacturer reports. A utility bucket converts the unit for bulk material handling in a matter of minutes. Standard power steering, dual range 6-speed transmission, high-speed reverse, and in-line shifting are said to combine with hydraulic control to provide fast, precise operation of both tractor and attachment. For further information about Work Bull fork-lifts, write to **Massey-Harris-Ferguson, Inc.**, Work Bulls Div., Dept. C&E, 1721 Packard Ave., Racine, Wis., or use the Request Card at page 18. Circle No. 45.



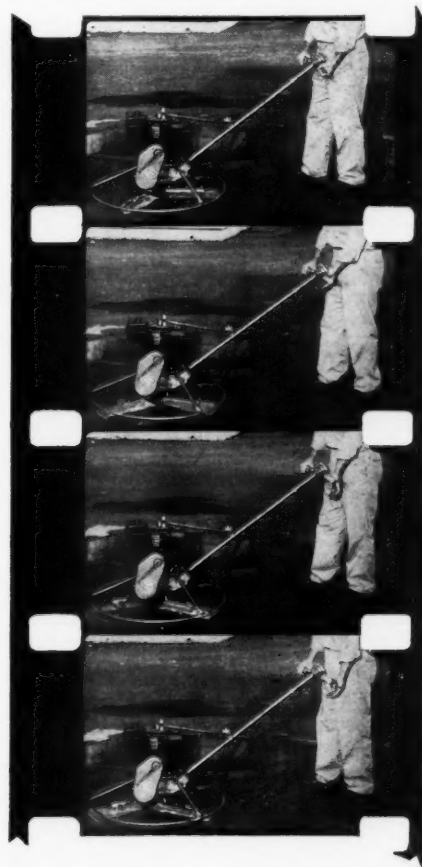
Successfully expanding plant facilities under difficulties—driving one of 74 pipe piles, each 10 in. in diameter and 45 to 55 ft. long, by a McKiernan-Terry Pile Hammer to provide foundations for additional heavy equipment within a steel mill while workers keep production going nearby. McKiernan-Terry Corporation, 82A Richards Ave., Dover, N. J.

For more facts, use Request Card at page 18 and circle No. 328

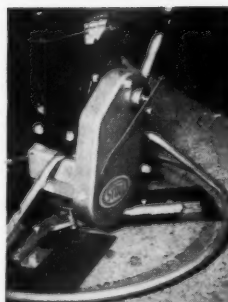
A TROWEL BLADES IN MOTION

B CLUTCH CONTROL ON HANDLE IS RELEASED (NOTICE OPERATOR'S LEFT HAND)

C WITHIN 1/4 TURN, OR 1/6 OF A SECOND, THE BLADES ARE COMPLETELY STOPPED



MOVIE FILM PROVES STOW ROTO-TROWEL STOPS INSTANTLY!



Close-up of manually actuated clutch control which stops blade rotation within 1/6 second, when handle is released.

Just one of the big reasons why STOW ROTO-TROWELS are your best trowel buy! Within one-sixth of a second, Stow's Dead-Man Clutch Control stops the blades, but not the engine! That means Stow Roto-Trowels are SAFER, because the trowel blades stop the very instant the lever is released. What's more, this clutch makes the engine easier to start, since full throttle can be used if necessary. Stow Roto-Trowels also feature: fixed, non-rotating guard ring; pitch control on the handle; adjustable handle; lifting hook on the engine.

Available in 24, 29, 34 and 46" trowel diameters, in gas or electric models, Stow Roto-Trowels are built for safety and long life . . . built to produce excellent concrete finishes. For complete information on Stow Roto-Trowels, write for Catalog 560.



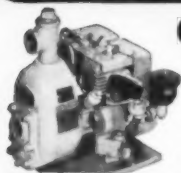
STOW MANUFACTURING CO.

40 Shear Street, Binghamton, N. Y.

For more facts, use Request Card at page 18 and circle No. 329

RICE PUMPS

THE LINE THAT IS COMPLETE



LIGHTWEIGHTS

1½" - 2" - 3"

- 5500 to 18,000 GPH
- Iron or Aluminum
- Powered with 4 Cycle Air-Cooled Gasoline Engines

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Check on the availability of the RICE LINE for your territory.

CENTRIFUGALS

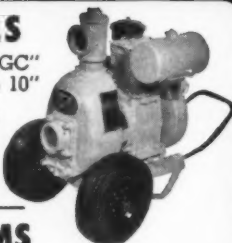
All Standard "AGC" Sizes from 1½" to 10"

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- Precision Built

DIAPHRAGMS

2" - 3" - 4" Singles Big 4" Double

- Single or Double
- Lightweight
- 48:1 reduction
- Gearing fully enclosed and operates in oil.



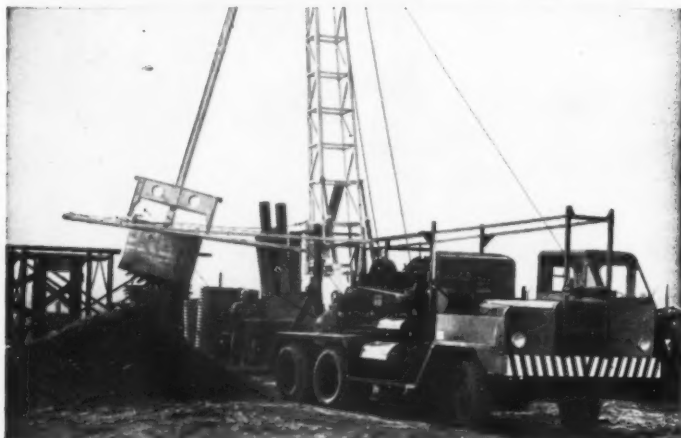
RICE PUMP & MACHINE COMPANY

228 PARK AVENUE

BELGIUM, WISCONSIN

For more facts, use Request Card at page 18 and circle No. 330

eliminate manual digging



IN EXCAVATING FOR...

CAISSON PIERS • CONCRETE PILES • TANK BURIAL • CESSPOOLS
SOIL TESTS • MINING • WATER WELLS • OIL WELLS • MANHOLES

THE BUCKET ROTATES ON a CALWELD Earth Drill and bores down into the earth. When the bucket is full it is pulled up and dumped. That's how easy it is to make a clean excavation of any size from 1 to 10 feet in diameter and as deep as 200 feet.

The excavation goes fast, too, because it removes up to 1.4 yards per pass; can dig a hole 45 feet deep in less than one hour. Thus, the CALWELD Earth Drill eliminates slow, costly hand labor and danger to workers.

There is a variety of interchangeable buckets available for digging in all types of subsoil formations.

Hundreds of CALWELDS are being used by contractors throughout the World. Investigate the many, money-saving advantages of this high-speed excavator. Write for catalog. CALWELD, INC., 7222 E. Slauson Avenue, Los Angeles, Calif.

DIGS 12" TO 120" HOLES
AS DEEP AS 200 FEET

MOBILE • MANEUVERABLE



CALWELD BUCKET TYPE EARTH DRILLS

For more facts, use Request Card at page 18 and circle No. 331

A portable hoisting machine that extends to a 45-foot unloading height is offered by the Buck Equipment Corp. As the tower elevates, wheels retract, giving the trailer unit a solid purchase on the ground. Available with both gas and electric-powered motors, the machine reportedly can be erected in 23 minutes by one man, and will raise 2,000 pounds of building materials at speeds from 65 to 140 fpm. Accessories include self-dumping concrete buckets with 14 or 17-cubic-foot capacities and a gin pole for adding extra sections to the tower. For further information write to Buck Equipment Corp., Dept. C&E, 720-X Anderson Ferry Road, Cincinnati 38, Ohio, or use the Request Card at page 18. Circle No. 45.



Masonry drilling tool is compact, portable

A hand-swivel drill motor designed for high-speed drilling in all types of masonry materials including reinforced concrete is announced by The Wheel Trueing Tool Co.

The combination consists of a heavy-duty, 1,000-rpm drill motor with integral water swivel that supplies water to the cutting face of the diamond drill to flush away cuttings. The water fitting may be connected to any ordinary supply line and on jobs where running water is not available, it may be hooked up to a portable, pressure water tank.

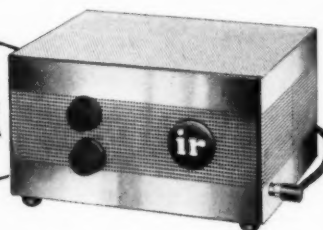
Ten feet of heavy-duty electric cable is supplied. The unit may be plugged into any 110-v line, 60 cycles or less, and will give high-efficiency drilling with bits from one inch to 3½ inches in outside diameter, according to the manufacturer.

For further information write to



The Wheel Trueing Tool Co., Water Swivel Div., Dept. C&E, 3200-53 W. Davison Ave., Detroit 38, Mich., or use the Request Card at page 18. Circle No. 142.

the VOLUNTEER



A POWERFUL NEW COMMUNICATION RECEIVER FOR YOUR 2-WAY RADIO SYSTEM

FM
VHF

Expand the usefulness of your 2-way radio system by installing high performance VOLUNTEER Receivers in all vehicles not presently equipped with 2-way radio. Low cost VOLUNTEERS will permit you to page drivers or supervisory personnel in any area reached by your radio transmitter. Calls are acknowledged by public telephone—often saving hours of vital time.

VOLUNTEERS are designed by the manufacturer of the famous Pak-Fone 2-way Portable Radiotelephones so widely used in public security emergency communications.

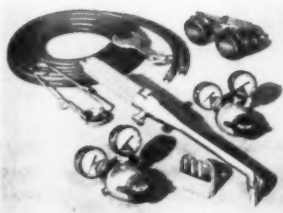
Write or wire or phone AUstin 7-8888 for the name of your local dealer.

- FEATURES**
- CAR AND HOME/OFFICE MODELS
 - 15 TUBES (AC/150)
 - CRYSTAL CONTROLLED
 - EXTREME FRINGE RECEPTION
 - COMPACT—EASILY INSTALLED
 - FCC APPROVED
 - 25 to 55 MC—140 to 175 MC
 - CHROME STEEL CASE
 - AS LOW AS \$99.00 (less crystal)

INDUSTRIAL **ir** RADIO CORP.
428 N. PARKSIDE AVE. • CHICAGO 44, ILL.

For more facts, use Request Card at page 18 and circle No. 332

CONTRACTORS AND ENGINEERS



Offer improved welding, cutting unit

An improved model of its Prest-O-Lite No. 420 welding and cutting outfit capable of welding up to $\frac{3}{8}$ inch and cutting up to 2 inches is announced by the Linde Co., Division of Union Carbide Corp.

On the blowpipe, which welds, cuts, heats, and brazes without a cutting attachment, the cutting oxygen lever has been moved to the top of the handle where it can be turned on or off with the thumb. A green plastic ring has been placed around the oxygen valve and a red ring around the acetylene valve for quicker and more positive identification.

Plastic gage crystals for oxygen and acetylene regulators, furnished with the outfit, have been replaced by non-clouding glass kept in place with a screw-type retaining ring. This improvement eliminates the need to buy a complete new gage whenever a crystal becomes damaged.

Besides the No. 420 blowpipe and R-412 and R-413 regulators, the new model includes: four interchangeable tips (three welding, one cutting), 12½-foot-length twin hose, goggles, friction lighter, wrench, and complete instructions.

For further information write to the Linde Co., Div. of Union Carbide Corp., Dept. C&E, 30 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 121.

Fold-back truck mirror fits cab-over-engine rigs

A new type of truck mirror for wide cab-over-engine tractors and tilt cabs is available from Power Brake Parts Mfg. Co. Designated the Model 962 fold-back truck mirror, the device is designed to fit the new 1957 Ford tilt cab line of trucks. It also fits all cabs over 76 inches wide, both cab-over-engine and tilt, including International, Diamond T, Mack, and Kenworth.

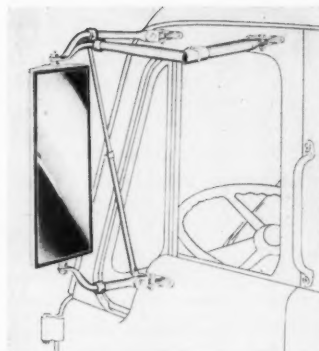
The mirror, with its bending elbow fold-back device affords easy compliance with the "eight foot law", according to the manufacturer. It requires no disassembling to clear obstacles or narrow openings.

The mirror folds back to within 5 inches against the cab door for maximum clearance in close areas and to meet state regulations. It can be extended from 14 to 16 inches.

The same model mirror fits either the left or right-hand side of the cab, and reportedly is easy to mount and requires no special fittings. A lock-nut and washer arrangement allows for easy positioning of the mirror head, while keeping the entire unit rivet-tight.

The same mirror to fit wide cabs is also available in Model No. 822, a conventional, rigid mount.

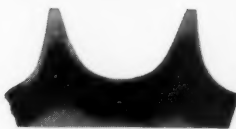
For further information write to



Power Brake Parts Mfg. Co., Dept. C&E, 3441 S. Racine Ave., Chicago 8, Ill., or use the Request Card at page 18. Circle No. 47.



HERE'S WHAT
BORALLOY
DOES...



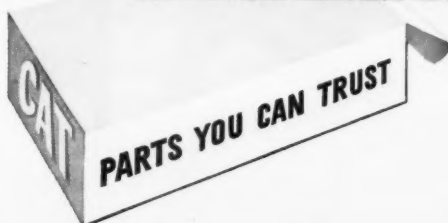
It increases sprocket life 50 to 100%! Got the name?—Boralloy. It's a new alloy which Caterpillar uses to make sprockets and replacement rims. It permits a minimum of 61% deeper hardening.

Result: CAT* BORALLOY sprocket teeth hold their contour longer. Teeth and track bushings stay in proper mesh, reducing wear and tear on all track running gear. Don't take chances. Get parts you can trust—see your Caterpillar Dealer today! Where else can you get the long-life benefits of Boralloy?

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



For more facts, use Request Card at page 18 and circle No. 334

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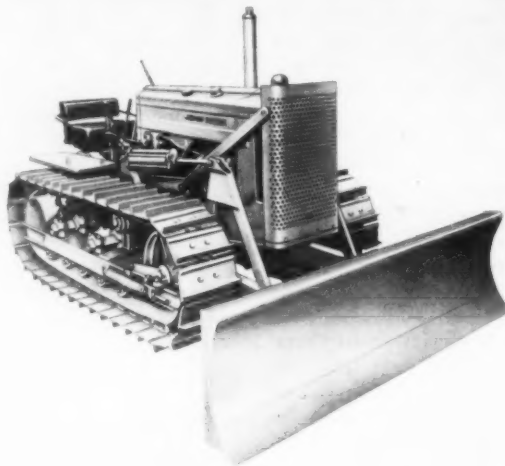
Product Parade

Mounted on the John Deere 420 crawler tractor, the company's Model 62 inside-frame bulldozer lifts more than 3 feet and cuts deeper than 10 inches.

Inside-mounted dozer blade has 3-foot lift

Its new Model 62 bulldozer, an angling and tilting blade for use with the firm's 4 and 5-roller crawler tractors, is announced by John Deere. Single and double remote hydraulic systems are available for the tractors, but only one circuit is needed for operating the two double-acting hydraulic cylinders which raise and lower the blade.

The Model 62 cuts more than 10



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COLUMBUS McKINNON CHAIN CORPORATION
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CHICAGO • CLEVELAND
In Canada: McKinnon Columbus Chain Limited, St. Catharines, Ontario



For more facts, circle No. 335

inches deep and its blade is shaped to produce a rolling action of the material being moved. The mounting frame is attached solidly to the cross bars on the tractor. Skid shoes permit the operator to work easily on finish grading, according to the manufacturer.

Warning light with sealed-in protection

Dependability is featured in the all new Parmak Gardrite warning light offered by the Electrade Corp. Designed for construction and industrial uses, the unit is precision built throughout. Its heavy deep-drawn steel case houses a pulsator, an on-off switch, and two 6-volt batteries that operate up to two months.

The latest filament-type marine bulb provides maximum light at greatest distance. The unit flashes 60 to 70 times a minute. A swivel head assembly permits a 90-degree adjustment of light without moving barricade. A special tool is furnished

The blade has a lift of more than 3 feet, and is available in cutting widths of 6 feet and 7 feet 4 inches.

For further information write to the John Deere Industrial Div., Dept. C&E, 3300 River Drive, Moline, Ill., or use the Request Card at page 18. Circle No. 120.

for clamping the tamper-proof mounting on the barricade.

The Parmak dual transistorized, hermetically sealed pulsator will operate completely submerged in water. It has no moving parts, and offers extremely long life. The pulsator can be replaced as easily as changing a radio tube. The Gardrite is built to provide trouble-free, all-weather, service.

For further information write to Electrade Corp., Dept., C&E, 2617 Walnut St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 173.

Arc welding "at site" is MORE PROFITABLE

with these lightweight, portable HOBART welders



Lets your men do welding jobs on the spot
Versatility... dependability... high efficiency... these are qualities which make contractors successful and add up to more profits. The successful contractor knows he can rely on Hobart welders for these same profitable qualities. Take this "BIG BROTHER" 4-cylinder air cooled gasoline engine drive for example. Versatile... welds anywhere, does on-the-spot repair jobs immediately, provides DC 2 kw power for tools, lights, motors. Dependable... packed with long life features. Efficient... Hobart engineering assures highest performance standards. Coupon will bring you the complete story quickly. No obligation. Hobart Brothers Co., Box 887, Troy, Ohio Phone FE 21223 "One of the world's largest builders of arc welding equipment"

HOBART WELDERS

FREE Welder's Vest Pocket Guide, ask for your copy!



Contractor's Special 250 amp. AC Welder AC Power Combination

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Without obligation, send complete information on the following: _____ amp. capacity.
☐ "Big Brother" ☐ AC Welder/AC Power
☐ Contractor's Special ☐ Vest Pocket Guide
Name _____ Position _____
Firm _____
Address _____

For more facts, use coupon, or Request Card at page 18 and circle No. 336

Offer new self-propelled rock-drilling unit

A new self-propelled, crawler-mounted rock-drilling unit is announced by the Gardner-Denver Co.

Designated the JMT Mobiljumbo, the unit is available with crawlers powered by either diesel-hydraulic drive or by 5-cylinder radial air motors.

The machine is furnished with two or three creep-free hydraulic booms. Rock drills and feeds may be selected to suit the ground being worked.

An air motor drives the hydraulic pump for remote control of the boom and for drill positioning by one man.

An electric generator, air motor

Neenah FOUNDRY COMPANY

construction castings of sound quality...solid value



Patterns for 15,000 different Gray Iron Castings for
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Neenah FOUNDRY COMPANY

NEENAH, WISCONSIN CHICAGO OFFICE
5445 North Nava Ave.
Chicago 31, Illinois

For more facts, circle No. 337
CONTRACTORS AND ENGINEERS

The JMT / hydraulic c be accomp

driven, su the worki eration.

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Attach outside

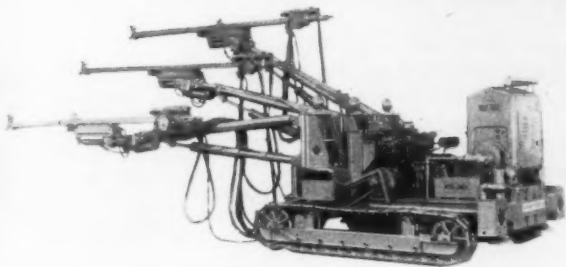
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Design or blade motor gra special ad as cutting The att construct

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Of simp ment-sup locking p the fram ripper sh For fu Swanson 63rd St., the Requ No. 149.

To obtain of the pr tion, circ end of th at page 1 AUGUST,



The JMT Mobiljumbo rock drilling unit is powered by either diesel-hydraulic drive or by 5-cylinder radial air motors. Drill positioning can be accomplished by one man.

driven, supplies three lights that flood the working face and the drilling operation.

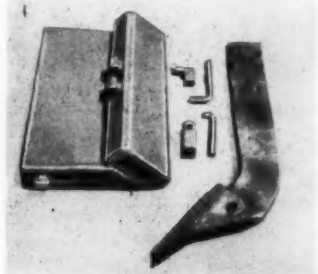
For further information write to the Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 132.

Attachment rips area outside scraper width

Two models of a ripper attachment are available from the Swanson Mfg. Co.

Designed to rip outside the wheels or blade of the Caterpillar No. 12 motor grader, the tool is said to be of special advantage in tight work such as cutting close to stakes.

The attachment is of welded steel construction, with a maximum rip-



ping depth of 10 inches. Weight of the attachment, exclusive of the ripper shank, is 50 pounds for the Model 10 and 67 pounds for the Model 20. Both models are otherwise identical, except that the Model 20 has the additional feature of being movable on the moldboard frame so that it can be carried permanently if desired by merely moving it over to the center and out of the way when not needed.

The Swanson ripper is so designed that it can be used on either the right or left side of the grader merely by turning the attachment upside down as it is shifted from one side to the other.

Of simple construction, the attachment-support boot requires only two locking pins, one to lock the boot on the frame, the other to lock on the ripper shank.

For further information write to Swanson Mfg. Co., Dept. C&E, 515 63rd St., San Diego 14, Calif., or use the Request Card at page 18. Circle No. 149.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.

AUGUST, 1957

MIX and PAVE

-ALL IN ONE OPERATION



**BURCH
THE
MODEL 12
ONE-MAN
CONTROL
PAVER and
RESURFACER**

Mixes, spreads, and levels bituminous material 10 to 12 feet wide in ONE pass. Material is rolled and mixed FOUR times. Easily adjusted to spread uniform thicknesses over varying contours. Wheel base is 22' 10". The Burch Paver is tractor-pulled — but its operation is hydraulically controlled, with power supplied by a self-contained gasoline engine. FOR SOIL STABILIZATION — GRAVEL ROADS — BITUMINOUS MIX-IN-PLACE. Write Dept. CE for literature.

The BURCH Corporation
CRESTLINE, OHIO, U.S.A.
MANUFACTURERS OF EQUIPMENT FOR CONSTRUCTION AND MAINTENANCE OF ROADS AND STREETS

For more facts, use Request Card at page 18 and circle No. 338

Bigger cargo area!



Another new and bigger Forward Control 'Jeep' Truck — the FC-170 — puts a big 9-foot platform stake body on a wheelbase only 103½-inches long. This 7,000-pound GVW workhorse has room for 49 bales of hay, 35 bags of cement, or 60 bushel baskets. And the bed is only 35-inches from the ground for back-saving ease of loading!

"Go-anywhere" action!



The new 'Jeep' FC-170 Truck sets a new standard for "big-load" maneuverability. It delivers payloads of up to 3500-pounds to areas ordinary vehicles can't reach. The spacious Safety-View cab puts you in a "Forward Control" position — lets you maneuver on or off the road with greater command of any driving situation!

Tough-job traction!



The extra traction of FC-170 4-wheel drive, and its wide 63-inch tread, take you "almost anywhere" with ground-gripping stability. It shifts easily into conventional 2-wheel drive for highway travel. The high-torque Hurricane 6-226 engine delivers real working power at low cost. It's ready for your bigger, tougher jobs!

New 'Jeep' Forward Control
4-Wheel-Drive **FC-170**

Willys...world's largest manufacturers of 4-Wheel-Drive vehicles

For more facts, use Request Card at page 18 and circle No. 339

...other members of the famous 'Jeep' family:



Forward Control 'Jeep' FC-150



Universal 'Jeep'



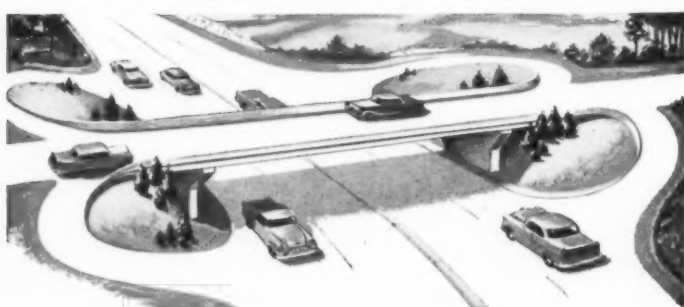
'Jeep' Utility Wagon

See 'Jeep' vehicles at your Willys dealer



"Road crew blasting up ahead. There'll be a short, interminable wait."

-ALI-



Here's why you should make PRESSTITE-KEYSTONE a



for all your paving & building product needs

- **EXPANSION JOINTS: PRE-MOULDED ASPHALT AND NON-EXTRUDING FIBRE OR KAPCORK®.**
- **ASPHALT BOARDS: TONGUE AND GROOVE JOINTS; DUMMY JOINTS.**
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- **KAPSEAL® CRACK FILLER.**
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- **ONE COMPLETE BUYING SOURCE**
No need to shop around when you can get all your wants in this giant supermarket of paving products. If you use it... we have it.
- **BIG SAVINGS IN MIXED-CARLOAD SHIPMENTS**
Why carry a big inventory on low-need items? Stock only what you'll need—carry a more diversified stock—when you order under Presstite-Keystone's freight-saving "Mixed Carload Plan." Ask us about it.
- **ONE CONVENIENT INVENTORY & BILLING ACCOUNT**
Less paper work, easier and faster handling, more net profits for you.
- **FAMOUS-NAME QUALITY**
Two reliable names combine to bring you controlled quality, reliable delivery—and a personalized engineering service whenever you need it.



A Division of AMERICAN-MARIETTA COMPANY
3788 CHOUTEAU AVENUE, ST. LOUIS 10, MISSOURI
For more facts, use Request Card at page 18 and circle No. 340

Product Parade

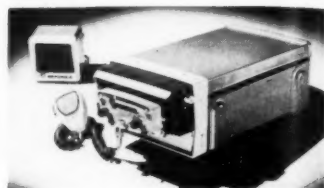
New mobile radio units eliminate vibrators

A new line of mobile radio units, said to eliminate vibrator replacement problems, is announced by Motorola, Inc.

Called the T-Power radiophones, the two-way units incorporate a transistorized switching circuit in the power supply in place of the conventional vibrator.

The radio drawer is interchangeable between dash or trunk-mounted installation. For trunk mounting, the plug-in control head is said to be easily removed from the radio.

The new mobile radiophones, rated at 20 and 25 watts power output, are available for operation in the 25-50 mc and the 144-174 mc bands. They operate from 12-volt negative ground sources and are directly interchangeable with equivalent Motorola Twin-V trunk mount units, which



also operate from 12-volt negative ground sources.

These models can be supplied with either conventional squelch or as private line radiophones which prevent the reception of nuisance noise and outside messages.

For further information write to Motorola Communications and Electronics, Dept. TIC, Dept. C&E, 4501 Augusta Blvd., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 167.

Two-directional flasher is transistorized

Highway contractors are finding the Econo-Flasher, complete with barricade, an economical dependable warning device. This transistorized unit is waterproof and has longer "dwell" and provides exceptional incandescent brilliancy.

Unidirectional and two-way heads rotate 90 degrees. Sixty-day contin-

uous service is provided by two Ray-O-Vac No. 941 lantern batteries.

For further information on the Econo-Flasher, write to Safe-T-Flare Corp., Dept. C&E, 2005 Armour Road, North Kansas City 16, Mo., or use the Request Card at page 18. Circle No. 172.

ROCKFORD MORLIFE® Over-Center CLUTCHES Provide



HIGH TORQUE

ROCKFORD Spring-Loaded CLUTCHES, equipped with MORLIFE clutch plates, provide 100% more torque grip than previous type clutches of equal size. This permits the use of smaller diameter clutches. Easier operation is accomplished by reducing the required engaging pressure. 50% better heat disposal avoids down-time caused by burned or warped plates. Numerous field records prove that MORLIFE clutches operate 400% longer without plate replacement or adjustment. Let these NEW type clutches help improve the operation of your heavy-duty machines.

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER

314 Catherine St., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.



For more facts, use Request Card at page 18 and circle No. 341

CONTRACTORS AND ENGINEERS



Small Spring Loaded



Heavy Duty Spring Loaded



Oil or Dry Multiple Disc



Heavy Duty Over Center



Power Take-Offs



Speed Reducers

Product LITERATURE

For further information on any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Mobile roofing equipment—a booklet entitled "Six Ways Roofers Save Money by the Use of Roofers' Tanks" describes the advantages of bulk haulage in roofing. Savings in labor and material, as well as the faster and cleaner operation afforded through the use of truck-mounted roofers' tanks, are among the points discussed. Photographs and a cutaway sketch of a semitrailer unit.

Write to Littleford Bros., Inc., Dept. C&E, 453 E. Pearl St., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 33.

Water suction, steam hose—two new catalog sections on the B. F. Goodrich lines of water suction and steam hose. The water suction hose section consists of four illustrated pages that provide operating data and specifications on five types; coupling information also supplied. The steam hose section provides the same information for five types of steam hose.

Write to B. F. Goodrich Industrial

Products Co., Dept. C&E, 500 S. Main St., Akron 18, Ohio, or use the Request Card at page 18. Circle No. 40.

Mobile asphalt plant—a folder describing the TM Mobile-Mixer, a portable asphalt plant available in batch capacities up to 2,000 pounds. The unit is described as being completely contained on a single trailer frame. Photographs illustrate the text, and specifications are furnished.

Write to Standard Steel Corp., Dept. C&E, 5087 S. Boyle Ave., Los Angeles 58, Calif., or use the Request Card at page 18. Circle No. 35.

Front-end loader—a folder describing the Sherman front-end loader. On-the-job photographs demonstrate the machine's versatility. Information on available attachments is included.

Write to Sherman Products, Inc., Dept. C&E, 3200 W. 14 Mile Road, Royal Oak, Mich., or use the Request Card at page 18. Circle No. 83.

Diesel pile hammers—a bulletin describing the McKiernan-Terry Models DE-20 and DE-30 diesel pile hammers. Contents include details of the operational features, such as mobility, timesaving, costs, and maintenance. The complete cycle of the operation is described, as are design features, and specifications for both models are furnished.

Write to Pile Hammer Div., McKiernan-Terry Corp., Dept. C&E, 100 Richards Ave., Dover, N. J., or use the Request Card at page 18. Circle No. 72.

Steel panel construction—a 32-page booklet covering the many types and sizes of Armco steel buildings, said to meet every space need. Subjects discussed include simplified panel construction; ease of erection; fire and lightning protection; ease of expansion, rearrangement, or relocation; and freedom of interior treatment and finish. Contains numerous tables, as well as drawings and photo-

graphs of typical installations.

Write to Armco Drainage & Metal Products, Inc., Dept. C&E, 703 Curtis St., Middletown, Ohio, or use the Request Card at page 18. Circle No. 29.

Conveyor systems—a pamphlet on Smith conveyors and bins. Also describes various types of troughing rolls and return idlers. Contains drawings, photographs, and brief specifications of equipment, as well as views of several plants designed and fabricated by the firm.

Write to L. B. Smith, Inc., Dept. C&E, Camp Hill, Pa., or use the Request Card at page 18. Circle No. 87.

Mobile radio equipment—literature describing the Link line of mobile radio equipment. Several models are presented on individual, illustrated specification sheets.

Write to the Link Radio Corp., Dept. C&E, 110 Jericho Turnpike, New Hyde Park, L. I., N. Y., or use the Request Card at page 18. Circle No. 134.



Above: Pouring section of first floor of new 5-story Herman Miller Bldg., Dayton, Ohio. Right: Close-up of operator using a Master "1-Man" vibrator between closely spaced reinforcing rods.

"1-Man" vibrators cut cost on \$4,000,000 office building

"Our two '1-Man' vibrators are the best pieces of equipment on the whole job," says Zimmer Miller, Supt., Miami Valley Construction Co. "We use them exclusively to vibrate the 7,000 yds. of concrete going into footers, columns, walls and slabs on this job. We cover 6,950 sq. ft. with each slab pour and one man with a Master vibrator keeps up easily with the pour and thoroughly vibrates the heavily reinforced pan slab.

"We like these vibrators because we know they can take it and because they save us money every day on the job."

You'll like the new "1-Man," too, because it gives you 100% longer life than other makes. The motor is sealed in the vibrating head; there's no flexible shaft to get out of whack; no oiling or greasing problems. It's actually a self contained, precision built vibrator. It weighs only 25 lbs. . . and with no heavy engine or motor to drag around, one man handles it easily. Plugs into any regular 115 volt AC or DC outlet. Find out yourself . . . write for free folder or ask your Master distributor for a free demonstration.

MASTER VIBRATOR COMPANY
158 Stanley Ave., Dayton 1, Ohio

MASTER

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LIMA ROADPACKER...

The cost-cutting vibratory compactor—proved on turnpike jobs

This is the hard-hitting, high-capacity machine that penetrates deeper—finishes a 13' width in one to three passes.

On this Ohio Turnpike job near Cleveland, Ohio, the LIMA Roadpacker is compacting a bank run gravel sub-base to an 8" high-density thickness. The LIMA Roadpacker's maneuverability was demonstrated efficiently on this job which required compacting operations in widely scattered sections—the problem of transporting cumbersome equipment and the duplication of units was eliminated.

Course aggregate for macadam bases up to 12" thick can be spread in a single layer, then uniformly compacted to final density

over a 13'-1" width with the LIMA Roadpacker.

Single spread, which is permissible only with the vibratory method, reduces material handling by one-half or more—it eliminates backtracking of spreading equipment and contour shaping is needed only once.

The action of the vibration "runs in" screenings to full depth of macadam with only three operations. Much of the labor formerly required to spread, broom and roll is eliminated. The versatile LIMA Roadpacker performs with equal efficiency on both full-width and widening jobs.

Here's how the LIMA Roadpacker speeds up paving operations.

- Drives to job at 30 MPH.
- Compacts equally well traveling forward or reverse—no deadheading or turning around when two passes are required.
- Covers a 13'-1" width, one-half of a two lane road.
- Operator can easily fold end shoes for

narrower working widths or for highway travel. Shoes are raised and lowered hydraulically.

- Low maintenance—all working parts are completely enclosed, can even operate under water or dirt. Shoes are driven hydraulically and are pressure-lubricated.

A fact-filled 4-page folder tells how the new LIMA Roadpacker will help you make more paving profits. Write for your copy today.

LIMA

SHOVELS • CRANES
DRAGLINES • PULLSHOVELS



BALDWIN-LIMA-HAMILTON
Construction Equipment Division—LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddyplane • Electronics & Instrumentation
Hamilton • Levey-Hydropress • Jauden • Pelton • Standard Steel Works

For more facts, use Request Card at page 18 and circle No. 343

Product Literature

Explosives—an informative 48-page catalog offering helpful information for users of explosives. Specific assistance in selecting explosives for a wide range of applications, as well as descriptions of the firm's complete line of explosive products. Contains more than a score of tables and over 100 illustrations.

Write to the Atlas Powder Co., Dept. C&E, Concord Pike & New Murphy Road, Wilmington, Del., or use the Request Card at page 18. Circle No. 117.

Self-propelled scraper—a pamphlet describing the latest engineering developments on the Model 55 Pay-scraper, now available as a 14-cubic-yard unit. Contains close-up photographs of features such as the improved bowl, 3-piece reversible cutting blades, and the flow system of positive power steering. On-the-job

photographs illustrate the maximum all-around stability of the unit. Brief specifications are supplied.

Write to Construction Equipment Div., International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 41.

Front-end loaders—a 16-page catalog describing five models of the Tractolader line: the TL-20D, TL-12, TL-11, TL-10, and TL-6. Contains on-the-job photographs and specifications of each model.

Write to the Tractomotive Corp., Dept. C&E, Deerfield, Ill., or use the Request Card at page 18. Circle No. 160.

Barricades, signs—a booklet describing various models of the Sentry line of barricades and warning signs. Information on accessories is in-

cluded. Photographs and drawings illustrate the text.

Write to the Traffic Equipment Corp., Dept. C&E, 2064 S. Bannock St., Denver 23, Colo., or use the Request Card at page 18. Circle No. 154.

Bridge concreting—a pamphlet containing 5 case histories on the advantages of Pozzolite concrete additive. Covers concreting of piers and bridge decks for highway and railway bridges, and includes discussion of hot and cold weather concreting. Attractively illustrated with on-the-job photographs.

Write to The Master Builders Co., Dept. C&E, 7016 Euclid Ave., Cleveland 3, Ohio, or use the Request Card at page 18. Circle No. 158.

Portable batch plant—literature describing the Ross Porta-Plant, a portable concrete batch plant designed to be fed by any front-end loader and with sack cement. Illustrated with photographs.

Write to Ross & Son, Dept. C&E, P. O. Box 446, Brownwood, Texas, or use the Request Card at page 18. Circle No. 82.

Wide range of tools—a new 120-page general catalog listing nearly 5,000 Armstrong tools. The catalog contains 500 new types and sizes never offered before. Photographs, specifications, and a price list.

Write to Armstrong Bros. Tool Co., Dept. C&E, 5200 W. Armstrong Ave., Chicago 30, Ill., or use the Request Card at page 18. Circle No. 69.

Masonry, concrete saws; blades—literature on the Clipper line of sawing equipment. Also contains information on hot pour and cold applied joint sealers. General specifications and prices.

Write to the Clipper Mfg. Co., Dept. C&E, 2800 Warwick, Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 102.

Tying column forms—a pamphlet describing the advantages of tying concrete column forms with Signode steel strapping. Case history with on-the-job photographs.

Write to Signode Steel Strapping Co., Dept. C&E, 2600 N. Western Ave., Chicago 47, Ill., or use the Request Card at page 18. Circle No. 84.

Portable puller—a folder describing the Chisholm-Moore portable, lightweight puller. A chart furnishes general specifications for ¾, 1½, 3, and 6-ton-capacity units. More complete specifications are contained in the text. Photographs illustrate the unit's ability to pull at any angle.

Write to the Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp., Dept. C&E, 6067 Fremont Ave., Tonawanda, N. Y., or use the Request Card at page 18. Circle No. 129.

Clutches—literature describing the various types of Conway clutches. Text is illustrated with photographs and drawings. Specifications are furnished.

Write to The Conway Clutch Co., Dept. C&E, 2745 Colerain Ave., Cincinnati 25, Ohio, or use the Request Card at page 18. Circle No. 80.

Prefabricated steel buildings—USF rigid-frame prefabricated steel buildings are described in this bulletin. Included are specifications, information on a full line of variable accessories, and data on USF's Quad-lap corrugation for weather-tight joints. Photographs and drawings.

Write to United Steel Fabricators, Inc., Dept. C&E, 333 Gasche St., Wooster, Ohio, or use the Request Card at page 18. Circle No. 38.

Concrete-curing paper—a folder describing the features of Fiberglass-reinforced weatherproof concrete-curing paper. Other curing methods are discussed and compared with the paper application. Illustrated with on-the-job photographs.

Write to the Owens-Corning Fiberglass Corp., Textile Products Div., Dept. C&E, 598 Madison Ave., New York 22, N. Y., or use the Request Card at page 18. Circle No. 119.

Wheel-type ditcher—an 8-page folder describing the Barber-Greene Model 774 wheel-type ditcher. On-the-job photographs show the machine at work on a variety of jobs, in conditions ranging from spring mud to 26 degrees below zero. Drawings and close-up photographs of the unit further illustrate the text.

Write to Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 68.



On many jobs mobility means money—you have it with this "Eagle on wheels". Size and weight permit highway travel from pit to pit. Quickly attached to semi-tractor. Can be hauled to pit and positioned next to screen. Washer side flares—removed for travel, as shown—are quickly installed, water connection is made, and you're ready to operate!

Operating in a dry pit or with hydraulic dredge, the unit removes excess silt-laden water and classifies the desired aggregate which is dehydrated by the two screw washer-classifier-dehydrators. Material delivered suitable for handling by conveyor to stockpiles or bins, or by trucks. Both screws can produce same product or each can produce a separate gradation—facilities provided to remove overage of any excess sand meshes.

This simple, compact, economical Eagle Portable Section can process up to 200-tons per hour of specification material. Design based on Eagle's long experience and field testing. Get the complete story—send for Bulletin 557.

✓ CHECK THESE ADVANTAGES:

- Fast take-down, transport and erection means less down time when changing pits.
- Flexibility—use both screws to produce one product or produce a different gradation with each screw.
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- Easy manual control of Splitter Gates with Blending Flumes adapts unit to variety of pit conditions.
- Quickly returns its cost through mobility plus capacity and range of materials.

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Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
898A 63rd ST., BROOKLYN 20, N.Y.

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CONTRACTORS AND ENGINEERS

Concrete vibrators, grinders—a folder covering the WYCO line of concrete vibrators and grinders. Featured besides the standard line of gasoline and electric models are the firm's new Junior vibrators now available with 1, 1½, and 1¾-inch heads. Also featured is a re-designed grinder for heavy-duty work. Illustrated with photographs.

Write to Wyzenbeek & Staff, Inc., Dept. C&E, 223 N. California Ave., Chicago 12, Ill., or use the Request Card at page 18. Circle No. 39.

Tractor applications—a 12-page booklet titled "Ford Tractors and Their Industrial Applications". On-the-job photographs show units of the 600, 800, and FMD Series performing a variety of jobs. Heavy emphasis on Ford special equipment.

Write to the Tractor & Implement Div., Ford Motor Co., Dept. C&E, 2500 E. Maple Road, Birmingham, Mich., or use the Request Card at page 18. Circle No. 153.

Tractors and attachments—a booklet describing the Oliver line of wheel and crawler-type tractors and attachments. Models "A", OC-4, OC-12, OC-15, and OC-18 crawler tractors are presented, along with the Super 55, Super 77-88, and Super 99 GM wheel tractors. All units are shown in on-the-job photographs.

Write to The Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 71.

Wire rope, cable assemblies—a bulletin titled "Wire Rope Recommendations for General Contractors". Covers all types of wire used by more than 20 different construction machines. Also describes the complete line of Tru-Lay preformed wire rope, wire rope accessories, and Dualoc boom cable assemblies. Sketches and on-the-job photographs.

Write to the American Cable Div., American Chain & Cable Co., Inc., Dept. C&E, 929 Connecticut Ave., Bridgeport 2, Conn., or use the Request Card at page 18. Circle No. 164.

Convertible hydraulic unit—literature on the Multi-Tool convertible hydraulic unit, for use with International TD-6, TD-9, and TD-14 tractors. Photographs show the Multi-Tool's adaptability to tool carrier, front-end loader, and both rigid and angle-tilt blade bulldozer. Brief specifications are furnished.

Write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland, Calif., or use the Request Card at Page 18. Circle No. 155.

Carbureted power units—a 12-page catalog on the I-H line of 6 new and increased horsepower 6-cylinder carbureted power units. Brief specifications are furnished, disclosing performances on gasoline, LPG, or natural gas. Illustrations include cut-away views and power and fuel-consumption graphs.

Write to Construction Equipment Div., International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 34.

Semi-dump trailer—a bulletin describing the 20-ton-capacity Stabilift semi-dump trailer. On-the-job photographs illustrate the unit's tri-cycle dumping action. Specifications are included.

Write to the Cook Bros. Equipment Co., Dept. C&E, 3334 San Fernando Road, Los Angeles 65, Calif., or use the Request Card at page 18. Circle No. 162.

To obtain any of the literature described in this section, circle the indicated number on the handy Request Card at page 18.

Excavator-loaders—a booklet describing the advantages of Traxcavators. On-the-job photographs and reports illustrate the machine's performance in a variety of operations. Information on attachments is included.

Write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 79.

Versatile excavator-crane—a 19-page bulletin emphasizing the convertibility of the Hystaway ½-yard excavator crane. The unit is designed for mounting on the Caterpillar D6, D7, or D8. On-the-job photographs show the machine performing as a dragline, crane, clamshell, pile driver, shovel, backhoe, and bulldozer. Specifications are furnished.

Write to Hyster Co., Dept. C&E, 2902 Clackamas St., Portland 8, Oreg., or use the Request Card at page 18. Circle No. 36.

Traveling, full-revolving cranes—a 32-page booklet illustrating the wide variety of work handled by Clyde Whirlies. Construction details and complete specifications are contained in this copiously illustrated bulletin.

Write to Clyde Iron Works, Inc., Dept. C&E, Duluth 1, Minn., or use the Request Card at page 18. Circle No. 165.

Truck crane—a pamphlet describing the Daybrook Speedlift power loader. Load-lifting capacities are

given up to 4,000 pounds, depending upon the boom length. Illustrated with on-the-job photographs and dimensional drawings.

Write to the Daybrook Hydraulic Div., L. A. Young Spring & Wire Co., Dept. C&E, Bowling Green, Ohio, or use the Request Card at page 18. Circle No. 161.

Platform trailers—literature on the Model PX heavy-duty platform trailer and Model PXO-LD, a self-loading, light-duty unit. Standard specifications are furnished. Illustrated with photographs.

Write to Transport Trailers, Inc., Dept. C&E, P. O. Box 968, Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 166.



Bucket teeth and ripper available at extra cost.

TEETH AT BOTH ENDS* BOOST PROFIT!

Production really steps up when this working team moves in—the Allis-Chalmers HD-6G tractor shovel with replaceable bucket teeth and rear-mounted ripper. Here's a job-proved combination engineered by the company that pioneered modern tractor shovels for the construction industry.

When the hydraulically controlled ripper bites in, even hard blacktop has to give. With the help of teeth at the front end, too, tough material is loosened and broken up for fast, easy loading—a full bucket every time.

You get more work done in less time because the heavy-duty HD-6G is designed for tough jobs. With 72 net engine hp and six-truck-wheel stability, it offers performance that means efficient production, bigger profits for every hour on the job.

These important advantages are also available on bigger Allis-Chalmers tractor shovels—the 2½-yd HD-11G, the 3-yd HD-16G, and the 4-yd HD-21G . . . to help you meet the needs of your tractor shovel jobs profitably. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Engineering in Action

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To obtain any of the literature described in this section, circle the number given at the end of the particular item on the handy Request Card that is bound in at page 18 of this issue.

Maintain Equipment at LESS COST . . . with the DECKER COMPRESSOR

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Available gasoline engine or electric motor all sizes portable and stationary—to fit every need

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CT-263

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Compartments are now 14½" deep . . . 2" deeper than ever. More space for large boxes and cans—for more tools, parts, and supplies, too. Cargo area, which stretches 48½" between compartments, has a tread-plate steel floor that really fights back when it comes to rough treatment. Models for old or new ½, ¾, 1, and 1½ ton chassis.

Available for immediate delivery in all 48 states

Optional equipment includes telescopic roof, ladder racks, pipe racks, vise bracket, and bumper-step. Canopy Top, shown here, furnishes more fully-enclosed cargo area.



You get all these NO-CHARGE EXTRAS

- Nylon bushings in all door hinges—doors can't bind.
- Bins with adjustable dividers—plus a hinged cover that keeps parts in place.
- Key-locking doors—made from two steel panels for super strength.
- Ready-for-work shelves and bins—built right in the body.

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Please send me descriptive literature and name of my nearest SERVICE-MASTER distributor.

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CITY _____ ZONE _____ STATE _____

For more facts, use coupon, or Request Card at page 18 and circle No. 348

Product Literature

Lightweight hose, accessories—a bulletin offering general data on Flexaust hose and Portavent retractable duct. Drawings illustrate a wide range of applications. Includes brief specifications and prices.

Write to The Flexaust Co., Division of Callahan Zinc-Lead Co., Inc., Dept. C&E, 100 Park Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 157.

Big pipe—a brochure describing the Robinson line of large-diameter clay pipe, fittings, and joints. Sizes and descriptions of both standard and extra-strength clay pipe with precast slip-joints are included. Illustrated with photographs.

Write to the Robinson Clay Product Co., Dept. C&E, 65 W. State St., Akron 9, Ohio, or use the Request Card at page 18. Circle No. 135.

Crane-shovel-dragline—individual, comprehensive specification sheets for the Koehring crawler-mounted Model 805, which can function in all three capacities. Illustrated with photographs and dimensional drawings.

Write to Koehring Div., Koehring Co., Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 43.

Pavement-breaking unit—a folder describing the versatility of the Ottawa Hydra-Hammer. On-the-job photographs show the machine breaking concrete pavement, tamping back-fill in both trenching and patching operations, cutting asphalt pavement, and a specially designed unit for driving guardrail posts.

Write to Ottawa Steel Div., L. A. Young Spring & Wire Corp., Dept. C&E, 435 S. Main St., Ottawa 60, Kans., or use the Request Card at page 18. Circle No. 30.

Tape coatings—a 24-page booklet on Polyken protective tape coatings for metallic pipe. Includes on-the-job photographs of the tape in a variety of uses, as well as typical application specifications, and information on inspection and repair.

Write to The Kendall Co., Polyken Sales Div., Dept. C&E, 309 W. Jackson Blvd., Chicago, Ill., or use the Request Card at page 18. Circle No. 156.

Self-propelled drill—a pamphlet on the Ingersoll-Rand Crawl-It, a crawler-type blast hole drill. On-the-job photographs demonstrate the drill's ability to operate in any position. Specifications are included.

Write to Ingersoll-Rand, Dept. C&E, 11 Broadway, New York 4, N. Y., or use the Request Card at page 18. Circle No. 112.

Fork truck—a brochure describing the Model YR-6024, a 6,000-pound-capacity fork truck for outside handling. Includes on-the-job photographs and specifications. Charts indicate tractive effort and gradability in both high and low range.

Write to Industrial Truck Div., Clark Equipment Co., Dept. C&E, 1921 Escote St., Battle Creek, Mich., or use the Request Card at page 18. Circle No. 113.

Power excavators—a well-illustrated 24-page catalog featuring the Gar Wood 75B series of ¾-yard power excavators. Contains action photographs of power shovels, cranes, draglines, and other optional excavator attachments. Important parts and assemblies are pictured and described in detail.

Write to Gar Wood Industries, Inc., Dept. C&E, Wayne, Mich., or use the Request Card at page 18. Circle No. 171.

Cabs for tractors—a pamphlet describing cabs available for every model of Caterpillar crawler tractors. Cabs presented include the fully enclosed, semi-enclosed, and canopy type. Photographs and brief specifications.

Write to Industrial Cab Co., Dept. C&E, 36 Jefferson Ave., Salem, Mass., or use the Request Card at page 18. Circle No. 42.

Concrete curing—literature covering the definition, effects, and methods of concrete curing. Paper curing is the method recommended, with a section devoted to the proper application and architectural specifications of Sisalkraft waterproof paper. Illustrated with on-the-job photographs and charts.

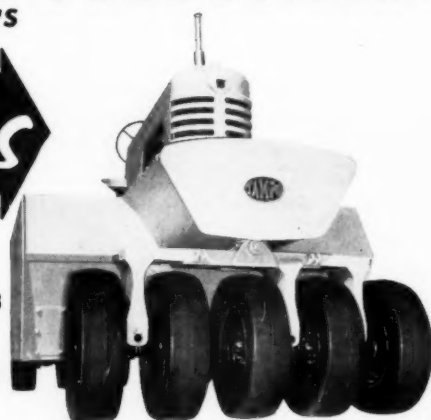
Write to American Sisalkraft Corp., Dept. C&E, 55 Starkey Ave., Attleboro, Mass., or use the Request Card at page 18. Circle No. 31.

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CONTRACTORS AND ENGINEERS

Sewer pipe sealer—a folder on Root-Seal, a hot-pour sewer pipe jointing compound. On-the-job photographs illustrate many of the sealer's field application advantages. An estimating table of pounds per joint requirement is included.

Write to the K. T. Snyder Co., Dept. C&E, P. O. Box 14233, Houston 21, Texas, or use the Request Card at page 18. Circle No. 115.

Shortcuts in drafting—a 59-page booklet titled "Time Saving Tips for the Draftsman and Engineer". Clearly written and well illustrated, the booklet shows new approaches to old problems. The section on calculating ideas contains 10 tips including easy ways of remembering the signs of trig functions, dividing a circle into parts, and locating decimal points.

Write to the Frederick Post Co., Dept. C&E, 3650 N. Avondale Ave., Chicago 18, Ill., or use the Request Card at page 18. Circle No. 7.

Conveyor belt repair—a booklet describing a repair service for worn and damaged conveyor and transmission beltings. Drawings show typical examples of belt wear and damage, and photographs illustrate the step-by-step repair operation.

Write to Conveyor Belt Service, Inc., Dept. C&E, 324 W. Michigan St., Duluth, Minn., or use the Request Card at page 18. Circle No. 114.

Air-entrained concrete—a new, enlarged edition of the booklet titled "Facts on Modern Placement of Concrete through Air-Entrainment". Subject is discussed in question-and-answer form, with emphasis on Protex air-entraining agent. Charts, tables, and on-the-job photographs.

Write to Autolene Lubricants Co., Industrial & Research Div., Dept. C&E, 1331 W. Evans Ave., Denver 9, Colo., or use the Request Card at page 18. Circle No. 28.

Hydraulic scraper—a pamphlet on the Oliver Model 990 hydraulic scraper. Text is illustrated with action photos, detailed close-ups, and a dimensional drawing. Specifications are furnished.

Write to The Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 127.

Crawler tractor—a fold-out specification sheet covering the Allis-Chalmers HD-16 diesel-powered crawler tractor. It features a cutaway view of the tractor that shows both the gear-type and the hydraulic torque converter drive transmissions, as well as many of the mechanical, design, and construction highlights of the HD-16. The torque converter drive is also reviewed along with its numerous advantages.

Write to Allis-Chalmers Mfg. Co., Tractor Group, Dept. C&E, Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 37.

Tube fitting wall chart—Parker steel fittings for connecting steel tubing lines are shown pictorially and identified by part nomenclature. Included are standard Triple-lok flare type, Ferulok flareless type and adapter fittings, as well as a tube fitting size table. Chart is 18 inches wide

by 25 inches high, with metal eyelet for hanging.

Write to W. D. Wynant, Tube & Hose Fittings Div., Parker Appliance Co., Dept. C&E, 17325 Euclid Ave., Cleveland 12, Ohio, or use the Request Card at page 18. Circle No. 44.

Driving instructions—a cartoon-style driver instruction booklet for the 7-speed R-35 Fuller RoadRanger transmission.

Write to Fuller Mfg. Co., Transmission Div., Dept. C&E, Kalamazoo, Mich., or use the Request Card at page 18. Circle No. 81.

Scraper performance—a booklet titled "Cat Lowbowl Scrapers. Keep Costs Low." Contains on-the-job reports and photographs collected through two years of operation.

Write to Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 70.

Two-way radios—a folder describing the G-E two-way radio design that permits components to be interchanged between station and mobile combinations. Adaptability of the design in adding optional equipment is also discussed. Illustrated with photographs.

Write to General Electric Co., Electronics Div., Dept. C&E, Electronics Park, Syracuse, N. Y., or use the Request Card at page 18. Circle No. 86.

Oil filter replacements—a complete list of Fram oil filter replacements for road construction equipment. Equipment is listed by make, type, and model, and the model numbers of both the original and replacement lube and fuel cartridges are indicated.

Write to Fram Corp., Dept. C&E, 55 Pawtucket Ave., Providence, R. I., or use the Request Card at page 18. Circle No. 32.



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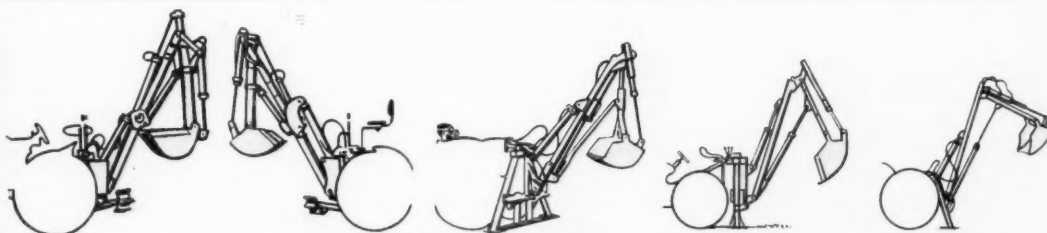
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Largest tractor-mounted backhoe. Digs 15 feet deep. Push-Pull power.

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Digs 12 feet deep. Push-Pull power.

D70 SCOUT
Digs 12 feet deep. Loads 8½ feet high.

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Dig 9½ feet deep. 6200 lb. force at bucket teeth.

"D62"
Smallest backhoe. Digs 7½ feet deep.

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AUGUST, 1957

133

Bracing system eases excavation work for 13-story office building

A Whiteman power buggy, riding on timber planking, dumps concrete over reinforcing bars for a foundation pour. Rack-free brackets are attached to the planking, making it easy to assemble or knock down.

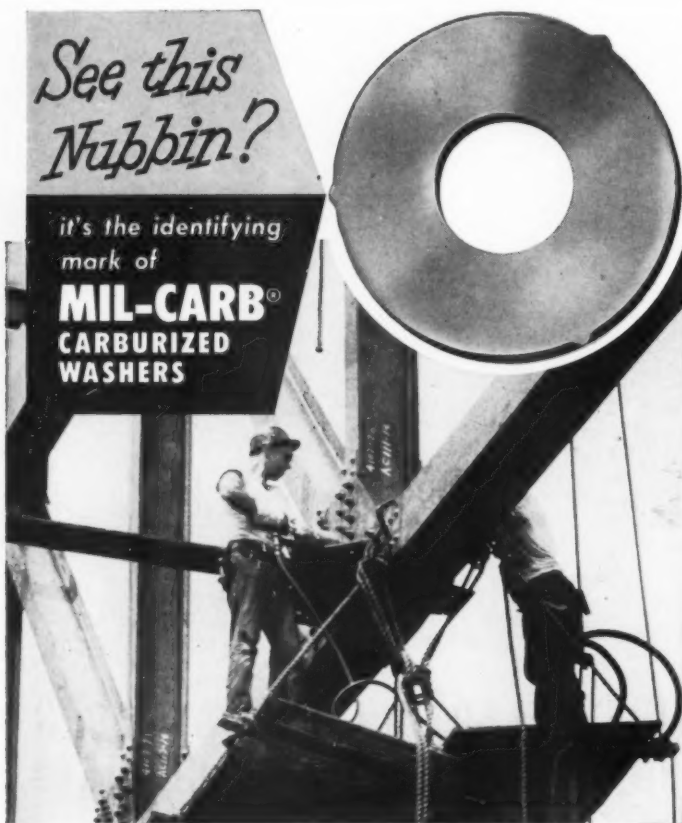
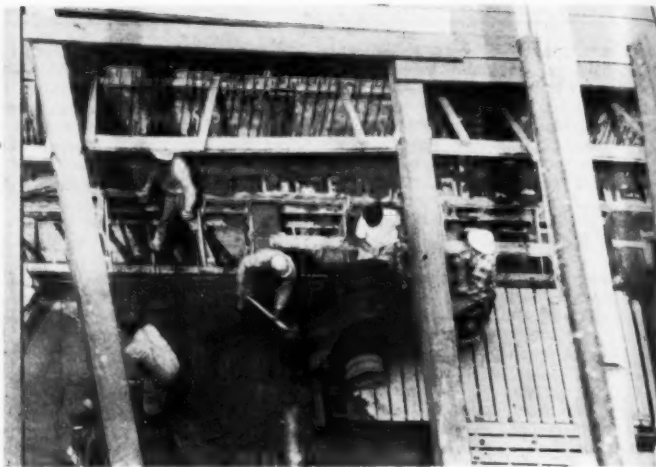


Photo courtesy Russell, Burdall & Ward Bolt and Nut Co.

From an appearance standpoint, all washers, regardless of brands, practically look alike. But, *there's a big difference in quality!* That's why, for easy identification and to insure your getting the very best, Mil-Carb Carburized Washers are identified by 3 "nubbins" on the outside rim.

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2. A special treating process provides an exceptionally hard "outer skin" to resist grinding by the nut under the impact wrench when others fail!
3. MIL-CARB washers are always uniformly flat and smooth with dimensions conforming to the American Standards Association.

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WROUGHT WASHER MANUFACTURING CO.
The World's Largest Producer of Washers

2116 S. BAY ST., MILWAUKEE 7, WIS.

For more facts, use Request Card at page 18 and circle No. 352

Excavation, drainage, and concrete and steel-placing all presented problems in the construction of four buildings for the Union Oil Co. of California in Los Angeles.

The \$20 million contract, let to Del E. Webb Construction Co., Los Angeles, and Phoenix, Ariz., calls for a 13-story, diamond-shaped home office building, a 4-story office structure, a 3-story building, and a 2-story unit.

All four buildings, located on a 4.8-acre site adjacent to the Harbor Freeway in downtown Los Angeles, were designed and engineered by the planning, architectural, and engineering firm of Pereira & Luckman, Los Angeles. When completed late this year, the home office building will have 250,000 square feet of space. The Fifth Street building, a 4-story unit connected to the home office building at the lobby and mezzanine levels, will contain 74,000 square feet of office space and 7,000 square feet of bank area, and will have provision for two additional stories.

The elevated 3-story Maryland

office building, connected to the home office structure at the mezzanine level, will have 56,000 square feet of office area, with provision for three additional stories. The 2-story Beaudry building, connected to the home office by two pedestrian bridges, will have an auditorium seating 500 persons, a cafeteria seating 275 people, and kitchen facilities.

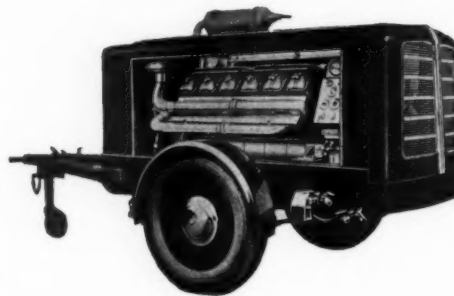
On three sub-surface levels beneath the home office, Fifth Street and Maryland buildings, and the Central Plaza will be parking facilities for 1,500 cars. All cars will enter and leave from all streets at different levels.

Huge excavation

A total of 400,000 cubic yards of earth had to be excavated to 74 feet below street level in the 300x600-foot area of the home office building. To eliminate side caving, the contractor used berms and slopes along the sides that stood at a natural angle of repose. Two rigs, one used as a dragline and the other as a shovel, and 60 trucks ranging from 10 to

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CONTRACTORS AND ENGINEERS

Steel-pile wall until the bracing

14-cubic-y shifts per streaked excavated cubic yard After e pleted, su Paramour skid rigs crane to nan-Terry powered l steel-pile ing. These ranging f arranged to support umn foot per footin design.

Following sub-surface within 25 Before t taken ou on 5 to 1 the same beam bra walls and

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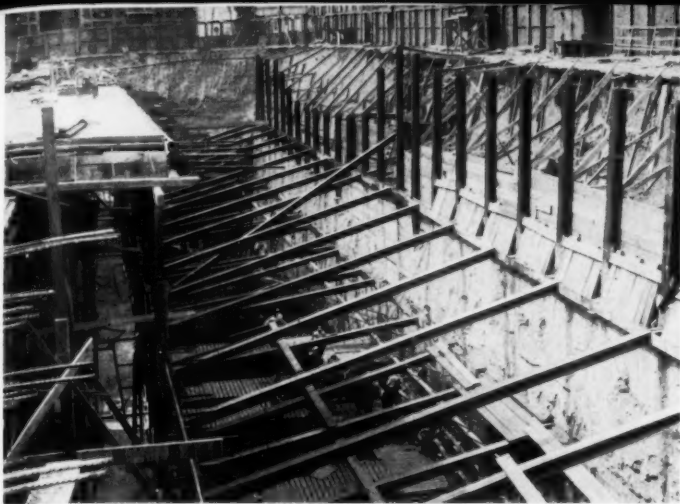
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Steel-pile H-beams on 5 to 10 foot centers brace the outer excavation wall until four sub-surface floors and walls are built. Workmen below the bracing are setting up timber planking for concrete operations.

14-cubic-yard capacity worked two shifts per day. The shale material, streaked with clay and gravel, was excavated at a rate of 6,000 to 10,000 cubic yards per day by these units.

After excavation had been completed, subcontractor Macco Corp., Paramount, Calif., moved in with two skid rigs and a crawler-mounted crane to start pile driving. McKiernan-Terry Type S8 pile hammers, powered by steam boilers, drove 2,700 steel-pile H-beams to 100-ton bearing. These Type 12BP53 steel piles, ranging from 25 to 60 feet long, were arranged on 3-foot centers in clusters to support reinforced-concrete column footings. From 3 to 109 piles per footing were called for in the design.

Following the pile driving, four sub-surface floors were built out to within 25 feet of the excavation walls. Before the remaining dirt was taken out, H-beams were installed on 5 to 10-foot centers—along with the same type of 12-inch steel H-beam braces—between the excavation walls and the completed building.

Dirt left in the excavation prism was removed by an Allis-Chalmers HD-15 front-end loader and dump trucks. As a one-story-deep lift was removed, additional H-beams were placed to brace the vertical sides of the excavation against caving until the outer building walls could be constructed. Later, as the outer walls were built, the H-beams were picked up—the bottom members being removed first as the outer portion of the basement was completed.

Drainage problem

To drain the lower floors of the underground garage, the contractor decided to connect a 443-foot-long gravity-flow drainage pipe to a storm sewer running underneath the Harbor Freeway. But to connect the existing storm sewer to the building excavation was a difficult job. Of the eight firms submitting bids, three planned to put a 4x4-foot tunnel through first, one figured on pushing an oversized casing forward in advance of the pipe, another planned

(Continued on next page)

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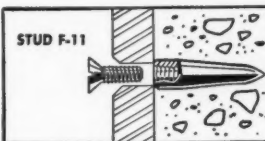
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Install metal door sills to concrete in seconds with the Remington Stud Driver



Metal fixtures are easy to install with the Stud Driver. Use a Remington F-11 internally threaded Stud and a 22 caliber Power Load. Attach fixture with #10-24 machine screw... no pre-drilling, no outside power needed!

Here's the sure way to save time and effort on your construction fastening jobs. Just load a Stud Driver, press firmly over work, squeeze the trigger—and the job's done! Scientifically graded 22 and 32 caliber Power Loads furnish exact driving force you need to anchor 1/4" or 3/8" diameter studs into concrete or steel... size change-over takes only 90 seconds, right on the job. Special guards and over 40 different studs make the Stud Driver the most versatile fastening tool available!

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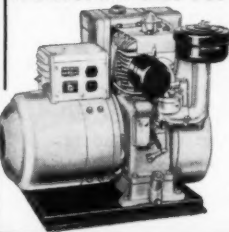
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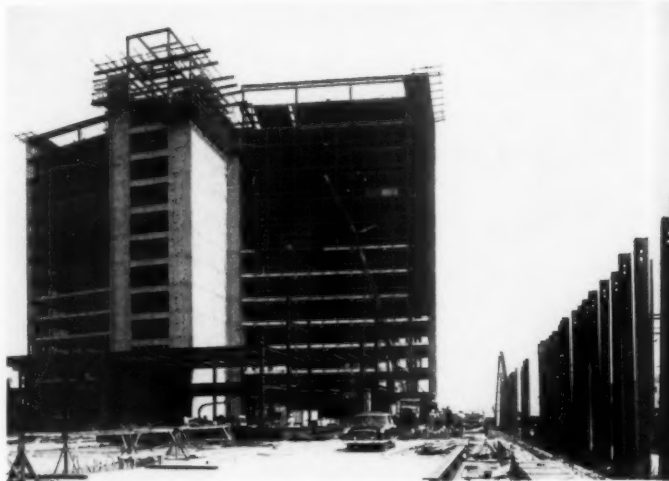


For more facts, use Request Card at page 18 and circle No. 354



A Hyster fork-lift truck moves a piece of structural steel for the home office building. The lobby has entrances on all sides and will be used for public displays.

A Lorain crane places steel for the 13-story, diamond-shaped home office building of the Union Oil Co. of California. A combination of welding and high-tensile bolting is being used to erect the structural steel frame.



(Continued from preceding page)

NEW!



Now equipped with a new and larger Onan 12.9 hp engine, the new Miller AEA-200-L produces a full 225 amperes of continuous rated, high cycle welding current or, 5 KW of 110/220 ac power for operation of power tools, lights, milking machines, etc., or, 1 KW of dc power.

Contractors, job welders, farmers and many industries have shown a continuing high regard for the AEA's weatherproof ruggedness, easy portability and instant changeover versatility from ac welder to power plant to pipe thawer.

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to sink several potholes and jack the line in sections, and three decided on jacking. No coring companies submitted bids because of the accuracy required.

The winning bidder was James S. Barrett, Santa Ana, which used the jacking method. The biggest difficulty on the job occurred when the pipe had to be jacked downhill, creating a water removal problem. Heavy traffic on the Harbor Freeway ruled out jacking the line from the lower end. Permission was obtained from the California Division of Highways to construct the junction structure just outside the edge of the freeway lane.

A 4x20x7-foot-deep excavation was made, the junction structure was completed, level and line shots were taken, and backfill completed. The pipe was then moved with two Greenlee jacks mounted on rails, each capable of exerting a force of 75 tons. The jacks and rails rested at precise line and grade on a concrete slab in a pit 20 feet below the deepest part of the building excavation. In setting line and grade for the rails, Webb engineers cut surveying time by taking foresights on a 110-foot-high crane cable.

Pipe-jacking work

Even though a fall of 13 1/2 inches in the 443-foot line gave Barrett very little leeway, he used 27-inch-diameter pipe—three inches over the specified 24-inch diameter. The pipe came in 8-foot-long sections, each with a 3-inch wall thickness.

At the face of the tunnel, Barrett stationed a miner and an air-oper-

ated Chicago Pneumatic clay spade to excavate the dirt. A 3/4-cubic yard-capacity earthmoving cart, curved to fit the contour of the pipe, was drawn to the portal by a rope and then pulled back to the face of the tunnel. The cart's wheels were held about 3 inches above the invert of the pipe to provide room for the rope, airline, and pump line. The electrical cord was extended from the top of the pipe to keep it out of the water. It was necessary to keep a Gorman-Rupp pump running continuously to enable miners to work at the face. With this setup, the crew averaged four feet per day.

The pipe was pushed forward about eight inches per minute. The miner at the face rode the pipe forward and guided its direction by inserting wooden wedges where needed. Line and grades were checked by a straight-edge laid on the invert of the end pipe. Grade readings were taken from an instrument set up at the portal to a rule, illuminated by a flashlight, held by the miner at the face. Since the slope was so slight, it was possible to shoot a level throughout the entire length of the line.

After 200 feet of pipe had been placed, an alignment hole was sunk from the surface. At that point the pipe was 2 inches off, but the inaccuracy was corrected in the next ten sections. When the jacked pipe was within 4 feet of the junction structure, the dirt was excavated ahead and the length line and grade readings were taken. The length was only 2 inches short; the line was within 1 inch of its true course; and the grade, 3/4 inch. In the last jacking operation, the pipe was brought to the exact grade and line of the junction structure.

Steel, concrete placing

Structural steel for the building skeleton, supplied by Independent Iron Works, Inc., Oakland, was erected by two cranes. As the skeleton rose, one crane jumped six floors to set the next section. The building's structural steel frame was erected with a combination of high-tensile bolting and welding.

Many of the floors were formed by row upon row of steel pans, which automatically created stiffening

CONTRACTORS AND ENGINEERS

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AUGUST,

beams and girders as the concrete was placed. An extensive amount of Waco steel scaffolding and Acrow steel shores were used to support the slabs and beams in the buildings.

A total of 16 Whiteman concrete buggies delivered concrete from the Rex and Challenge transit mixers operating between the job and Graham Bros. commercial plant on the outskirts of the city. Viber electric vibrators consolidated the concrete mix, and Whiteman mechanical steel finishers leveled the slabs.

A unique bracket was developed under the supervision of Webb's job superintendent, Neil Drinkward, which simplifies the job of building runway trestles for concrete buggies. The rack-free brackets were easy to assemble and knock down.

Building design

The lobby floor of the home office building, which can be entered from all sides, will have displays and public areas. The tower portion, consisting of 12 floors of office space, will contain 19,000 square feet per floor.

The exterior has a metal-glass facade. Windows will be cleaned from the inside, cutting maintenance work and costs. All window areas are protected from direct sun and glare by vertical aluminum fins and horizontal aluminum louvers. This solar control eliminates the need for drapes, Venetian blinds, or other types of interior shading.

Portable, prefabricated, interior partitions will allow the occupants to rearrange the offices without disturbing the office routine. The ceiling will be suspended and acoustically treated. The building is to be completely air-conditioned with a high-velocity system supplying cool air in summer or heated air in winter.

Other features include escalators to serve the first seven floors in the home office building, and elevators servicing the entire structure. The diamond shape will permit executive and private offices to be located around the periphery of the building, while the general office spaces will be located near the open areas in the center.

Personnel

The resident engineer for the Union Oil Co. is R. C. Nichols. P. L. Lawless is project manager and W. G. Brownie, chief superintendent, for Pereira & Luckman. J. J. Fahey is manager of job operations for Del E. Webb Construction Co., while Neil Drinkward is job superintendent and A. Guizot, job engineer. **THE END**

Fruin-Colnon appoints

James B. McGrath has been appointed labor relations and personnel director of the Fruin-Colnon Contracting Co., St. Louis, Mo. McGrath will also take over the duties of F-C's safety director.

He had formerly been in charge of labor relations at the firm's joint venture project for the Atomic Energy Commission at Weldon Springs, Mo., where a \$40 million uranium-processing plant is being constructed.

Kirkham, Michael news

E. Bruce Meier has joined the engineering consulting firm of Kirkham, Michael & Associates, Omaha, Nebr. Meier, formerly associate professor of civil and sanitary engineering at the University of Nebraska, will head the firm's newly created division of sanitary engineering.

Goodyear buys patents, trade marks of powder

Patents and trade marks for a rubber-mineral powder, used for highway and industrial purposes and sold under the name Rubarite, have been acquired by the Goodyear Tire & Rubber Co., Akron, Ohio.

The new products will be manufac-

tured under the administration of the firm's Research Division and the direction of H. A. Endres, manager of rubber and plastics research. Col. Walter F. Winters, formerly chief engineer of Rubarite, Inc., has been retained as consulting engineer.

Food Machinery opens plant

The Florida Division, Food Machinery & Chemical Corp., Lakeland, Fla., has formed a sales and manufacturing plant in Riverside, Calif., to serve all states west of the Rocky Mountains. The complete line of Form-Crete all steel prestressed concrete casting forms will be produced at Riverside.

E. G. M. Dykeman will be in charge of the Riverside operations.

N. Y. investing builders form group, join BTEA

A group of 27 owner-management firms, who annually sponsor over \$200 million in commercial building construction in New York City, have been organized under the corporate name of the Investing Builders Association. The IBA will affiliate with the Building Trades Employers' Association to further stabilize the construction industry in labor relations, cost control, and productivity.

Harold D. Uris has been elected president; John L. Tishman, vice-president; Jack Rudin, secretary; and Joseph Gerla, treasurer. William E. P. Doelger is chairman of the board of directors. Offices will be maintained at 711 Third Ave., New York, N. Y.

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He'll help you select the exact trailer size and features you need to gear your job for greatest output. He'll give you facts on the world's most complete line of haulers — rear dump, hydraulic ejection, side dump or bottom dump in capacities up to 45-tons.

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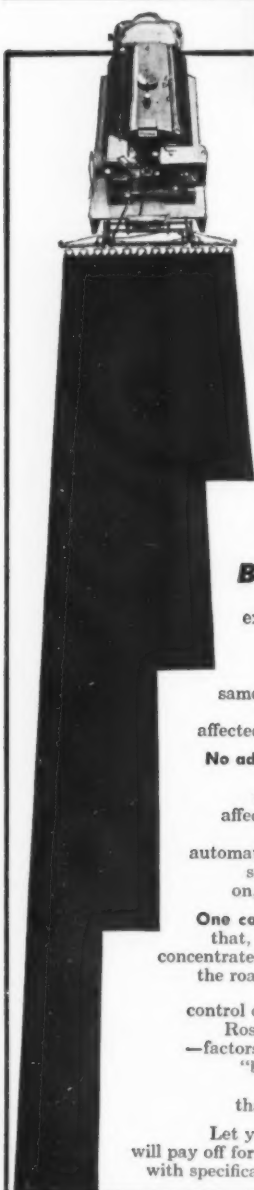
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material, time
and labor**

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One-man control.

The BURCH Road Widener is easily attached to any truck. Built-in 4-speed conveyor, which is driven by heavy industrial gas motor, will deliver where required. It will handle sand, gravel, stone, or bituminous material and empty its hopper as fast as you can fill it. Self-propelled (when detached from truck) and steered by hydraulic equipment. A high-speed unit unexcelled for 2 ft. and 4 ft. standard widening. For complete information write Dept. CE-87.



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ROSCO'S PRESSURE METERING

**MAKES THE
DIFFERENCE
AT ANY WIDTH!**

Do you know...

that it's possible to apply bitumen through any length of spraybar from 1 to 24 feet without changing the pressure and without any application adjustment? It can be done with a Rosco! You would normally expect surges or drops in pressure to occur when sections of a distributor's spraybar are shut-off or turned on.

But...

NOT with a Rosco Distributor equipped with exclusive Pressure Metering. Even when as much as 23 feet of a 24-foot spraybar are shut-off, the precise, accurate delivery remains unaffected... the pressure in the working one foot stays the same as it was pre-set at the beginning of the run. The accurate delivery from the working nozzles is not affected... no matter how many feet of the bar are cut out.

No adjustments in truck or pump speed are required—in fact, with Pressure Metering the pump speed never changes and normal wear of the pump never affects the accuracy of the application. When any part of the spraybar is shut off, the excess material is automatically by-passed. Pressure at the operating nozzles stays the same. When additional nozzles are turned on, pressure is immediately available to supply them.

One control sets the pressure specified for the job. After that, pressure control is automatic... the operator can concentrate full attention to spotting the material properly on the road. Pressure Metering is an integral part of Rosco's patented Master Valve that permits one-lever control of all normal distributor functions. You'll find that Rosco's Pressure Metering is faster and more accurate—factors which can be the difference between a "make" or "break" job in today's highly competitive field. And Rosco's Pressure Metering assures you of jobs that will always meet rigid application specifications.

Let your Rosco dealer show you how Pressure Metering will pay off for you. Or write the factory for descriptive literature with specifications on Pressure Metering-equipped Distributors.



ROSCO BITUMINOUS DISTRIBUTOR with Pressure Metering. Front or rear mounted for truck or trailer.

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Sidewalk superintendents are encouraged to view work on the new Time & Life Building project at this 65-foot clubhouse pavilion overlooking the excavation site at Rockefeller Center, New York City.

The lighter side

The sidewalk superintendent is getting increased recognition these days. Rockefeller Center in New York City has built a 65-foot pavilion for construction watchers at the excavation site of the new 47-story Time & Life Building opposite Radio City Music Hall. This Sidewalk Superintendents Club, located along the north side of 50th Street between Sixth and Seventh Avenues, has a festive atmosphere with a candy-striped canopy, flower boxes, pennants, and Plexiglas picture windows. A hostess is on hand to greet visitors, answer questions about the construction details of the \$70-million skyscraper, and issue membership cards to anyone who cares to join the Sidewalk Superintendents.

The club was officially inaugurated on July 2 when motion picture actress Marilyn Monroe touched off a talcum-powder "fire cracker" which was synchronized with an actual dynamite blast in the bedrock of the excavation pit. While the attractive blonde was being interviewed and shown around

club headquarters by executives of Time, Inc., the construction stiffs down in the hole were completely ignored by their fans. Not until M. M. left the scene for the helicopter which was to fly her back to her Long Island summer residence did the sidewalk superintendents go back to construction watching.

...

East a few blocks, at Lexington Avenue and 51st Street, Manhattan, street kibitzers are viewing the construction of another skyscraper with the help of television, no less. Every weekday from 8 a.m. to 4 p.m., sidewalk superintendents may scan any one of three 21-inch receivers mounted along one side of the project. The television camera is focused on whatever may be the most interesting phase of the job, whether it be outside in the early stages of construction, or interior shots when the 34-story office building is closed in.

Officials of Sam Minscokoff & Sons, the builder, have not been troubled so far by shovel operators, steel workers,



Cut backfill time 60%... with NEW POWER-PACK CONVEYOR

This low cost Power-Pack Conveyor provides a fast, labor-saving method for backfilling trenches, curbs and placing aggregate around drain tile. Power-Pack delivers smooth, uniform quantities.

Up to 700 tons of material per day can be handled using only one operator. Belt speed and discharge deflector are adjustable. The conveyor design also permits delivery of material up to 8 feet beyond truck and at heights up to 3 feet.

The POWER-PACK Conveyor can pay for itself on a single job.

Write for name of local distributor and Catalog H-56 with price sheets. Photograph album and testimonials available on request.
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For more facts, use Request Card at page 18 and circle No. 362

CONTRACTORS AND ENGINEERS



... The new construction watchers' club is opened as movie star Marilyn Monroe touches off this giant "firecracker."



... The opening official, Charles L. Stillman, executive vice president of Time, Inc., guides the blond beauty on a tour of the kibitzer's pavilion.

or the building trades craftsmen trying to mug in front of the TV camera.

...

In Chicago, where Inland Steel is building for itself a 19-story office in the Loop, project engineer Doug Monsson puts out bulletins to inform sidewalk superintendents of job progress. Recently squatters, in the form of pigeons, took up residence by constructing a nest in a 17th-floor ventilating duct. For building material the birds used soft annealed steel wire obtained on the site. Must have been comfortable for the parent pigeons raised two squabs to bird adulthood. Just in time, too, for the building is to be completed this fall.

...

A few weeks ago on the CBS telecast, "Let's Take a Trip", Sonny Fox, the trip master, and his two young friends, Joan and Jimmy, were visiting the construction of a 500-home building project at Smithtown, Long Island. Steve Muss of Alexander Muss & Sons, the builders, was showing the visitors around. Looking over the

grading equipment. Sonny Fox told Jimmy he could have a ride on the Caterpillar tractor, as a big International TD-24 stopped in front of the camera. Entirely unabashed by such things as equipment identification, Sonny repeated his invitation, "All right, Jimmy, climb right up on this Caterpillar tractor."

...

The contractor showed up well in the aftermath of the Benjamin Hooper rescue at Manorville, N. Y. The doctor who pumped oxygen down the 21-foot well, where the 7-year-old boy was trapped for 24 hours, submitted a \$1,500 for professional service to the boy's parents. Contractor Michael Stiriz of Patchogue, who supervised the rescue operations and got the boy out through a parallel shaft and cross tunnel, wanted nothing for his services. The American Medical Association and the local county medical society, embarrassed at the unfavorable publicity to the profession, prevailed upon the attending physician to cancel his fee.

... But the construction stiff went unnoticed as long as M. M. was around for interviews.



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*A COMPLETELY ENCLOSED-IN-OIL POWER-SHIFTED REVERSING DRIVE

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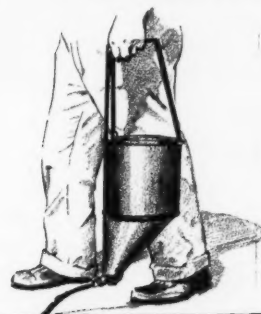
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AUGUST, 1957

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For more facts, circle No. 364

The engineering department— Field engineering



by **GEORGE E. DEATHERAGE, P. E.**
construction consultant

The work of a field engineer varies on different construction projects. In many cases, his work may be concerned with surveying and mapping; in other cases, he will not be doing usual engineering work but will be serving as the right-hand man of the superintendent. He will have to interpret the plans and specifications for foremen and subcontractors, check installations, measure the amount of work done as a basis for costs and payments, and see that work is being done in accordance with plans and specifications.

The field engineer is in the best position to take over these extra duties having to do with inspection and testing. He is on the job full time, whereas it is not always possible or practical to have an inspector for

each specific trade as the work progresses.

Where a job is not large enough to warrant an office engineering staff, the field engineer will usually handle the functions of such a staff. This work might include such drafting as is required for sketches and details, and the receipt and issuance of drawings. In many cases, he will act as liaison man with the subcontractors. If a job is large, and an engineering department is set up, the field engineer will do the outside engineering

work, leaving the office functions to others.

Field engineers' equipment

A single crew usually consists of four men—an instrument man, a rodman, and two chainmen. On very small work, the crew may be reduced to one instrument man who picks up his helpers—as he needs them—from the field crews.

In any case, the crew will need a basic set of tools and equipment. These include transit, eye level,

Philadelphia target rod, 100-foot steel tapes, tape repair outfit, plumb bobs, bob string, axes, sledge, brush hooks, hand hammers, chalk line, thumb tacks, India ink, clip boards, profile paper, drawing pencils, bull-points, and stone-concrete drills. Stake tacks, paint, marking brushes, red and blue lumberman's crayon, soapstone for steel marking, field and level books, an assortment of nails, hatchets, canvas tote bags, drawing instruments, portable sketch boards, cross-section paper, and col-

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40 TONS

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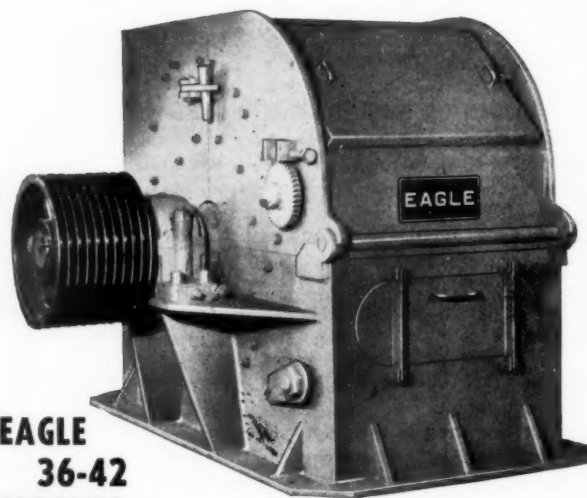
Extra large bearing diameters.
Pressure grease lubrication.
High speed bronze bushings or Hi-Load roller bearings.

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McKISSICK PRODUCTS CORPORATION
Box 2496 Tulsa, Oklahoma

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DOES **DOUBLE** DUTY



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Look at EAGLE before you buy!

Send for complete specifications, Folder 251-168



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CONTRACTORS AND ENGINEERS

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AUGUST, 19

This is the twentieth of a series of articles on Construction Management by George E. Deatherage, P. E., construction consultant. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by Geo. E. Deatherage & Son, P. O. Box 921, Lakeworth, Fla. The manual is used in a training course for superintendents and project managers, and is directed primarily at those contractor employees who have reached the foreman level or its equivalent, and who need practical help in order to take complete charge of construction projects themselves.

ored pencils round out the supplies.

If surveying and mapping is to be done, equipment such as a plane table, clinometer, sextant, sounding and range poles, range buoys, and similar items will be needed. The cost of all equipment and supplies should be provided for in the original estimate. It should not be charged to fixed overhead expenses. Personnel for field crews should be listed in the estimate under job overhead.

Field books

Properly ruled field books are available from most engineering supply houses for the keeping of level, transit, and stadia notes and computations. The wise superintendent or project manager will insist on field books being used for all work. Entries should be made neatly and calculations checked daily. This does away with the slipshod practice of making notes on odd scraps of paper that are generally lost and of no use as a record. These well-bound, pocket-size field books also contain much valuable tabular data on such things as curves and earthwork volumes.

Another valuable volume is the "I.C.S. Civil Engineers Handbook." Here, one will find basic data on all types of surveying, mapping, leveling, instrument adjustment, and a variety of mathematical tables that are in constant use in the field. Copies may be obtained at \$2 each from International Textbook Co., Scranton 9, Pa.

Daily progress reports

One of the duties that usually falls to the field engineer is the preparation of the daily construction or daily progress report. There are several types of these reports in general use.

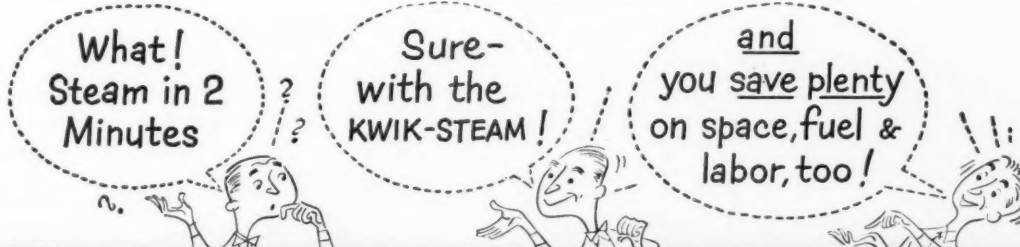
If the job is large, this work may fall to the planning and production organization. In most cases, however, the field engineer either performs or supervises this work.

Where the owner has a representative on the site, it is always well to have the representative sign the report as being correct. If a graphic progress chart is maintained, the field engineer may take it upon himself to keep this posted daily so that the actual progress is shown directly against anticipated progress.

Construction approvals

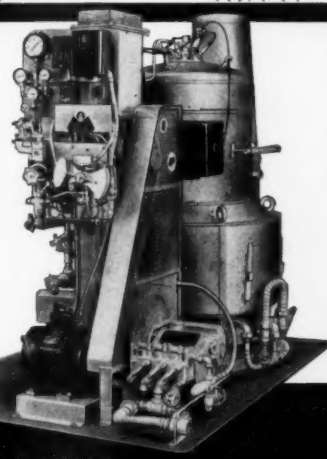
On any type of construction, it is good practice to have all the work checked before concrete is actually poured to make sure that such things as forms are correct, bolts and inserts are in their proper places, conduit and piping properly included and placed, and reinforcing in accordance with specifications.

The construction approval card, with stub, provides a systematic method of assuring that everything has been done properly before concrete is poured. At the time of inspection, the foreman for each trade must sign the card, indicating that his work is complete for a specific unit. If all is found satisfactory, the field engineer adds his signature, and



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Yes, you get full pressure steam in 2 minutes from a cold start with the Littleford Kwik-Steam Vapor Generator! Exclusive automatic modulating control reduces fuel and labor costs 50%. Compact design saves valuable floor space and cuts installation cost. Unit is shipped complete, ready for mounting on concrete base. Check the Littleford pile pounder generator which can easily be mounted on truck, crane or trailer. Write for bulletin 22, Littleford Bros., Inc., dept. LB 171A—485 E. Pearl St., Cincinnati, Ohio.



LITTLEFORD

Designed exclusively for generating steam for ready-mix, pile driving, concrete curing products, asphalt plants.

For more facts, use Request Card at page 18 and circle No. 367



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HAND TOOLS FOR CONCRETE, STONE, AND STEEL WORKERS



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Unfortunately, you cannot determine the quality of a pavement breaking tool by visual inspection alone. To understand why Vulcan tools are rated as high quality tools it is necessary to know of the "extras" that distinguish Vulcan Tools from "run of the mill" tools. A few of these "extras" include:

- Use of steel with the correct chemical composition and hardening characteristics for each type of tool.
- Temperature and time controlled furnaces to insure ideal temperatures for forging, normalizing, hardening, and tempering.
- All shanks checked during forging to insure proper sizing.
- Blast cleaned after tempering to attain smooth, clean surface.
- Each tool visually inspected for imperfections.
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Why not take advantage of these Vulcan "extras" at no added cost? They also provide inexpensive insurance against painful injuries caused by premature steel breakage.

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Specialists in the Design and Production of Pneumatic Tool Accessories

For more facts, use Request Card at page 18 and circle No. 368



Working through loose material, an International 20-yard Model 75 Payscraper is push-loaded by a TD-24. The job, being handled by Mountain States Construction Co., Denver, Colo., calls for 2 million yards of earth to be moved in relocating a 3-mile section of U. S. 85-87 near Colorado Springs, Colo.



Maintenance of about 90 miles of roads in Cedar Township, Mo., is handled by this Galion 450 motor grader. Powered by an International UD-350 engine, the grader covers the entire 90 miles of road—most of it gravel—once a month.

A 20,000 truck gets the Saratoga power for

IN '58, Contractors and Engineers will publish 3 KEY CONVENTION DAILIES



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- 2 **AED Daily** — The news of the construction industry while it's news during the annual, nationwide get-together of dealers and manufacturers at the Associated Equipment Distributors' convention and exhibit —

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- 3 **Sand & Gravel — Ready Mixed Daily** — On-the-spot daily coverage of the joint meeting and major equipment exhibit sponsored by the National Sand & Gravel and National Ready Mixed Concrete Associations.

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Distribution: 5,000 copies each day at each convention. Majority circulation to the hotel rooms of delegates. Copies also available in registration area, outside meeting rooms, etc. Plus carefully selected first-class mailing of copies to home offices of leading firms.

Advertising Units Available: Standard 7 x 10s and spreads plus conventional 3/4 and 1/2

page sizes. Also full C&E size page (11 x 15) for maximum impact.

Write to **CONTRACTORS AND ENGINEERS** for 4-page, illustrative dummy or for review copy of highly successful "Road Show Daily" published last January. Also, please let us know if you would like your home office to receive copies of one or more of the 1958 Convention Dailies by mail.

The 1958 Convention Dailies are a service to the construction industry sponsored by —

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For more facts, use Request Card at page 18 and circle No. 369

(Continued from preceding page)

the stub is torn off and handed to the concrete foreman. This is his authority to pour.

If, for instance, work was being done on a reinforced-concrete building, each floor would have to be cleared in the manner stated. This reduces the possibility that some vital part of the work has been omitted or is not in its rightful place. The procedure saves a lot of argument and a lot of concrete cutting. If part of the work is subcontracted, the subcontractor's foremen must sign for the work under their jurisdiction. A good practice for the field engineer is to daub the tops of checked bolts and inserts with red paint. This provides visual evidence to all that these items have been checked for location and grade and found satisfactory.

Nails driven to give grade and line can also be circled with red paint to set them off from nails driven by carpenters for similar purposes. The

1/2-pint brush and tote bag, concrete, st used to

It is u neers to soils to sign pur cedure m ground tion.

In ave should h with bott able elev the propo poor bea an area should p with a d tion for threaded to the to are taken be allowe

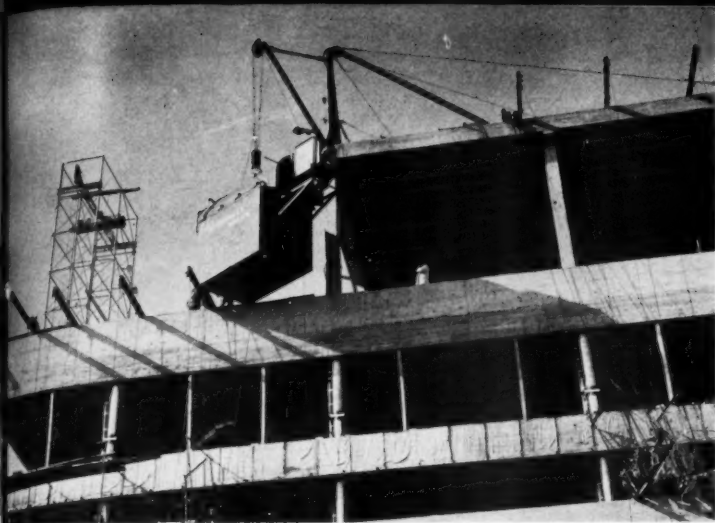
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**BLOCKS
CYLINDERS
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PIPE AND SLABS**

If it's a concrete tester you need—get in touch with

FORNEY'S, Inc.
TESTER DIVISION
P. O. BOX 310 - NEW CASTLE, PA.

For more facts, circle No. 370
CONTRACTORS AND ENGINEERS



A 20,000-pound lift with a five-part line and a single drum winch mounted on a truck gets one of a pair of Titusville boilers to the 15th floor machine room of the Saratoga building in New Orleans, La., in 45 minutes. Boilers will furnish power for heating and cooling units.



Tough grading in hard rock marks work on a section of superhighway between Bristol, Va.-Tenn., and Kingsport, Tenn. This Euclid 22-ton rear-dump truck is being loaded to full capacity. Oman Construction Co., Nashville, Tenn., has the contract.

1/2-pint can of paint and marking brush are handy items to have in the tote bag. The paint will stick to concrete, steel, or any other material used to place a grade or line point.

Soil load tests

It is usually up to the field engineers to conduct all load tests on soils to provide information for design purposes. The following procedure may be used for tests in open ground and for the usual foundation.

In average soils, the bearing base should have an area of 2 square feet with bottom of the base at the probable elevation of the underside of the proposed foundation. If soils have poor bearing, the base should have an area of 4 square feet. The base should preferably be of concrete, with a dowel provided as a connection for the platform column and a threaded pipe that can be extended to the top of the platform. Readings are taken from here. If time cannot be allowed for concrete to set, a lam-

inated timber base, spiked together, will serve the purpose.

Take precautions to prevent water from entering the pit, even though the pit has to be backfilled to the top.

If the test is at quite a depth, and the pit is much larger than the test area, the best practice is to pour a slab over the bottom of the pit, leaving a 2-foot-square area for the test base. The concrete in the base can be separated from the balance of the concrete with strips of cardboard. By using a base constructed in this manner, the contractor can judge the actual conditions of a deep foundation.

The platform should be loaded symmetrically, and without impact, with pig iron, cement, or other approved material. Each unit should be weighed in advance to the nearest pound.

Loads should be applied in uniform increments that increase the load unit on the soil at 1,000 pounds per square foot. In the case of a bearing base having an area of 2 square feet,

(Continued on next page)

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The best combination for better concrete cutting... DTA* Concrete Cutting Blade and Concrete Cutting Machine! Lightweight, ruggedly built unit capable of heavy duty work as well as trenching, joint cutting and patching.

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The Rolatape measuring wheel measures and records total as it is rolled along. Just the thing for estimating, layout work and many other measuring needs. Its one-man operation saves time and money—and accuracy is assured by its scientifically calibrated counting mechanism. Three convenient models to choose from. See your dealer or write today for free information.

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On top of the world—or at least high enough to give that illusion—this Cat. No. 12 motor grader with Precor automatic blade control attachment works on a section of U. S. 50 southwest of Carson City, Nevada. About nine miles of four-lane freeway are being constructed through this high country.



Slag material for an extension and widening job on the Middletown Air Depot runway in Middletown, Pa., is loaded out from the Bethlehem Steel Plant in Highspire, Pa., by a P&H shovel. The DW20 tractor with Athey PH20 wagon is one of several such hauling units in the fleet.



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The Coffing Mighty Midget Puller

Compact and lightweight, the Coffing Mighty Midget Pullers are handy lifting tools for all types of industries. The 1000 lb. capacity model weighs but 9½ lbs. and requires only 40 lbs. of handle pull. The 500 lb. model weighs 6½ lbs. and requires only a 28 lb. pull for full rated capacity.

The handle can be operated as a crank for fast lifting, or it can be used as a lever for short pulls, or for working in cramped quarters. Should the puller be overloaded, the "safety valve" handle will give before any load bearing part fails.

For full information on this compact, light and inexpensive lifting tool, consult your Coffing distributor, or write for Bulletin MP.



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Ratchet Jacks, Screw Jacks, Hydraulic Jacks, Special Worm Gear Jacks, Ratchet Hoists, Electric Hoists, Load Binders, Spur Gear Hoists

For more facts, use Request Card at page 18 and circle No. 373

(Continued from preceding page)

the load increment should be 2,000 pounds. In general, loading should be continued until a unit load of 12,000 pounds per square foot—including the weight of the platform and base—has been reached, or until failure.

No load increment should be applied until all settlement from the previous loading has stopped. The minimum period of time permitted to elapse between loadings should be determined on the basis of one hour for each 1,000-pound of unit load. For instance, at least three hours must elapse after an increment has been applied that develops a unit load of 3,000 pounds and five hours after an increment that develops a unit load of 5,000 pounds. Allow the final loading to remain 48 hours so that any unexpected fatigue in the soil can be detected.

The amount of settlement should be determined with an engineer's level from a fixed point on the datum

pipe. This reading should be made before and after each load increment is applied and the elapsed time recorded. It is also advisable to make intermediate readings to determine when settlement has stopped.

Using tabulated data, make a curve of settlement for each soil bearing test, plotting the settlement in inches as ordinates against the corresponding load on the soil as abscissa.

The safe bearing value of the soil is calculated as a percentage of the unit load that produces a total settlement not to exceed 0.1 inch for each 1,000 pounds of unit load with no settlement in the final 24 hours of the test. In any case, the safe bearing value should not exceed the same percentage of unit load that causes the first marked settlement.

The proper percentage to use in making this calculation will be based on the type of building, the character of its occupancy, and other conditions. On buildings of a type that

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**THE KEY TO ACCURATE FIELD
TESTS FOR MOISTURE DENSITY
IN EMBANKMENT AND FOUNDATION SOILS.**

Developed after two years' research and experiment by Department of Highways, State of Washington. Opens up entirely new possibilities for foundation and earth work engineers and contractors who can now make accurate moisture-density and compaction tests.

- in all large or small holes
- in all types soils and granular base materials
- in about 3 minutes after hole is dug

Now for the first time, holes of any size from 0.000 cu. ft. to 0.500 cu. ft. can be measured with the same equipment. Holes up to 22 inches in depth can be measured—singly or in successive lifts.

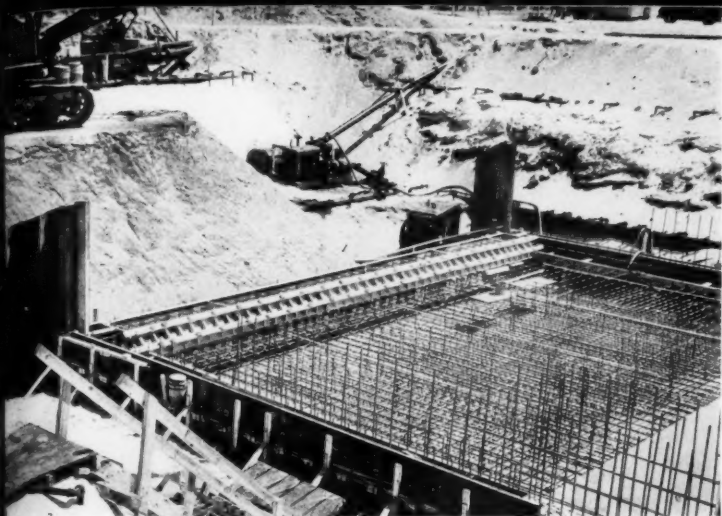
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SEATTLE 7, WASHINGTON

The unit is light in weight, compact, portable, very easy and economical to operate and maintain.

For more facts, use Request Card at page 18 and circle No. 374

CONTRACTORS AND ENGINEERS



Building a canal beside a canal in West Palm Beach calls for dependable work from a Griffin Wellpoint system. The pumps, powered by International diesels, removed some 15 feet of water so that concrete pouring could begin "in the dry" 7 feet below the adjacent canal for the new Corps of Engineers' job.



At a guided missile test site at Littleton, Colo., Winslow Construction Co., Englewood, Colo., uses an Allis-Chalmers HD6G tractor shovel to backfill a new bunker. The test area, part of the Glen L. Martin Air Force Guided Missile Plant, lies cradled in the mountains around Littleton.

HOW TO HANDLE WET JOBS

WELLPOINTS ELIMINATE SHEETING

Harbison-Walker Brick Refractory,
Hammond, Ind. — Contractor: Consoli-
dated Engineering & Construction Co.



WHEN A JOB-SITE is located, like this one, in the middle of a swamp—and when the water-bearing soil is a fine sand with an underlying layer of clay—it's not surprising that the contractor should figure on sheeting. Such expense, of course, runs heavy.

• Actually, in this case—as in many others which "look like" sheeting jobs—Griffin engineers were able to solve the problem far more quickly and economically with the use of wellpoints alone. Photo shows 2-stage system which successfully drained the 27 ft of ground water as required.

• Whatever your pre-drainage problems—power plants, pipelines, buildings, etc.—if you want lower costs for lowering water, it will pay you to check with Griffin, wellpoint specialists for over 2 decades.

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

For more facts, circle No. 375

AUGUST, 1957

(Continued from preceding page)

would be seriously affected by the settlement of foundations, the safe bearing will be taken at half the unit load at failure.

A small initial settlement in excess of the 0.1 inch for each 1,000 pounds may usually be expected because of superficial compaction of the soil. This has no relation to failure.

Measuring field work

Some types of cost systems require that the field engineer measure and record daily the amount of work completed for each subdivision of the cost code, then turn in a summarized weekly report.

The timekeeper or cost engineer then posts these quantities against the payroll expenditures and derives a unit cost to date. Such a quantity report is also useful when the amount of work done to date is compiled. This latter compilation forms the basis for requests for partial monthly payments. If the subcontractor's work

(Concluded on next page)

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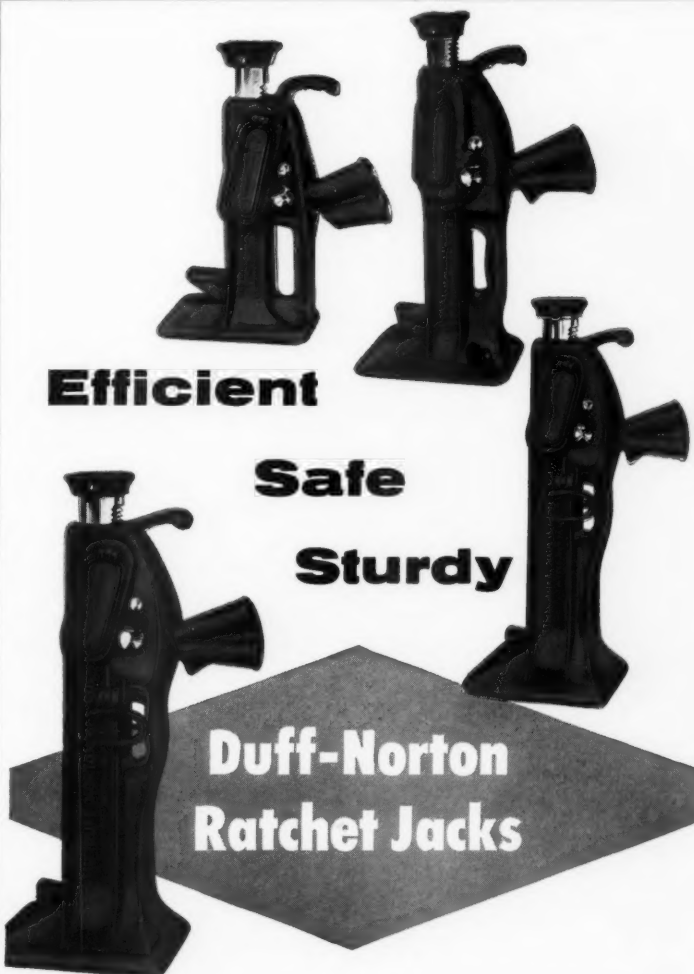
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Efficient

Safe

Sturdy

Duff-Norton Ratchet Jacks



Efficient design and sturdy construction make Duff-Norton ratchet jacks highly dependable tools for a multitude of uses. They are built to do any sort of moving, lifting or bracing job in mine and mill, or in the field, and will stand up under hard usage with very little maintenance.

Duff-Norton offers nine models of these handy jacks with capacities ranging from 5 to 20 tons. A special safety feature of all models makes it impossible to trip the jacks when under load.

For full information on Duff-Norton ratchet jacks, consult your distributor, or write to the world's oldest and largest manufacturer of lifting jacks asking for our 204-S Catalog.



Duff-Norton Jacks

DUFF-NORTON COMPANY

P. O. Box 1889 • Pittsburgh 30, Pennsylvania

COFFING HOIST DIVISION: Danville, Illinois

Ratchet Jacks, Screw Jacks, Hydraulic Jacks, Special Worm Gear Jacks,
Ratchet Hoists, Electric Hoists, Load Binders, Spur Gear Hoists

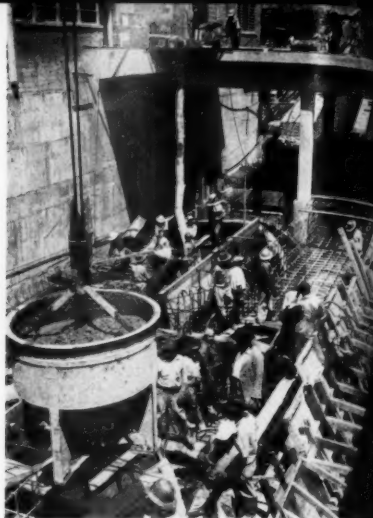
For more facts, use Request Card at page 18 and circle No. 377



A sweep of power through hills that have remained unchanged for centuries will take place when Colombia's Laguneta hydroelectric project goes into service. The \$13½ million job has



6½-foot-diameter penstock lines carrying water two miles from the Bogota River to the station; high tension lines carry power to Bogota. The plant will have three generating units, and pro-



vision for two more. Here, cranes are placing concrete. Gilbert Associates and Frederick Snare Corp., New York City, have about 1,000 men on the job.

Right-of-way Sod ...Right Away!



RYAN SOD CUTTERS

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For more facts, circle No. 378

(Continued from preceding page)

is subjected to the same procedure, the office will always have available the date necessary to check invoices for work claimed to have been done.

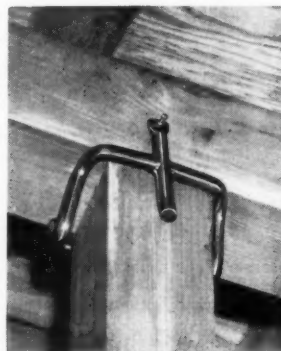
In any event, the work must be measured either daily or weekly so that unit costs can be calculated. It is easier—and more accurate—to keep daily records, even though these are not reported to the cost clerk for a week.

In using this system of measuring work accomplished, time can be saved by enlisting the cooperation of the foreman and having them measure the work done by the time their shift ends. The engineer can take each foreman's word for the work done daily, but he should personally measure the week's output to see that the accumulated total for the week checks out closely. Another method of saving time in this operation is to employ young engineers as time-keepers.

(Next month's article will deal with "Planning and production—scheduling".)

90% of the Time...

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Ellis Slip-In
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EACH SLIP-IN SHORE ERECTION TAKES ONLY A FEW SECONDS

With Ellis Methods, simple inverted U-shaped assemblies, each consisting of two Ellis Shores and a connecting purlin, are raised and braced. Then tremendous speed is gained by using slip-in shores between the two end shores. The purlin having a series of slip-in shore holders attached (see metal part in photo above), the shores are simply "slipped" into position. Old-fashioned methods of measuring, cutting, splicing, blocking and wedging are eliminated. Since frequently more than 90% of the shores used on a job are slip-ins, you can readily see that huge savings of time and money are offered by Ellis Methods.

From your plans, our engineers will work out complete suggested methods for top results.

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you've a pat hand for PROFITS on any low slump concrete jobs, too—



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TED (Truck Engine Drive) Models 5 to 7 yards capacity.
Separate Engine Models 4 to 7 yards capacity.

CONSTRUCTION MACHINERY CO., WATERLOO, IOWA

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Binder and top-course mix are put out at speeds of 180 and 160 tph for the relocation of U. S. 11 and 58 on the Tennessee-Virginia line. The work is done by the Barber-Greene Batchomatic, which has been added to the Barber-Greene continuous mix plant of R. G. Pope, Bristol, Va. The contractor is also saving



money per ton produced, since only four men are needed to operate the big plant. The 3,140 feet of four-lane pavement for the Kingsport road is being put down by Barber-Greene finishers. Here they lay two 12-foot strips simultaneously. Binder is placed in two 1½-inch lifts, the wearing course in a single 2-inch lift.

Testlab starts production of testing equipment

Testlab, a new corporation with headquarters at 2734 N. Laramie, Chicago, Ill., has started production of equipment for the laboratory and field engineering testing of soils and bituminous concrete materials. Its Karol-Warner line has electric recording mechanisms provided by Tinius Olsen. Tinius Olsen dealers will represent the new firm. Regional offices have

been opened in New York and San Francisco.

Jay M. Woldenberg is president of Testlab; M. D. Morris is vice president in charge of engineering and sales; and Bert R. Prall is treasurer. Reuben H. Karol, John P. Gnaedinger, J. H. McMinn, and Dr. A. A. Warlam are consultants.

Rust Engineering names new project manager

Niels K. Steenhill has been appointed project manager of the Rust Engineering Co., Pittsburgh, Pa. He will be in charge of a steel expansion project for the Bethlehem Pacific Coast Steel Corp. in Seattle, Wash. Steenhill, who joined Rust Engi-

neering in 1940, has served as field engineer, field superintendent, and general superintendent of construction. He is a member of the American Society of Civil Engineers, and chairman of the labor committee of the National Constructors Association.

Switzerland now has its first underground garage. The facility, located in Berne, has a capacity of 350 automobiles.

NEW LIGHTWEIGHT SCOOP MOVES ½ YARD OF DIRT IN ONE BITE!



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TERRA-SCOOP**
for large or small
contractors!

Here's a new concept in lightweight earthmovers... a finishing tool which actually makes a prime mover of your tractor. The Danuser Terra-Scoop does everything the big earthmovers do, in miniature. Slices off high places, carries dirt to low places, dumps, scarifies... all hydraulically, without long ropes or levers... at a cost of only a few pennies per operation. Quickly

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This is a rugged, alloy-steel machine which can pay for itself quickly. Does the whole job for small contractors. Frees expensive heavy machines for large operators. See the Danuser Terra-Scoop soon at your local tractor dealer.

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DANUSER MACHINE CO.

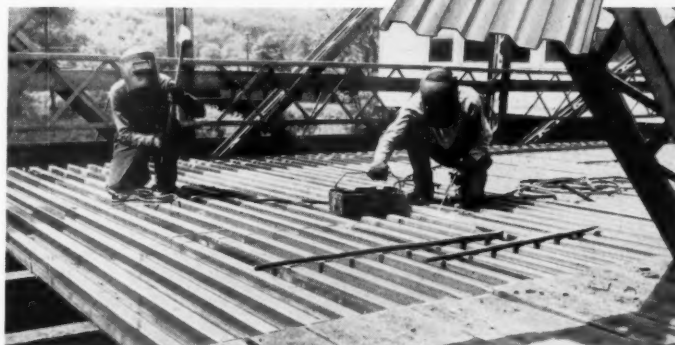
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WOOSTER, OHIO

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Surveying Washington

by HUBERT KELLEY, JR.

A quick congressional salvage operation was needed to save the St. Lawrence Seaway project from coming to a dead halt.

When Congress in 1954 authorized United States participation in construction of the 27-foot waterway between Lake Erie and Montreal, it was estimated that the total cost of the American portion of the project would be \$105 million. The Seaway

Development Corporation, set up to handle the construction and financing, was empowered by the lawmakers to borrow that sum from the U. S. Treasury.

But this sum has proved glaringly inadequate. Costs have so outstripped expectations that in just three years' time the corporation has eaten up \$101 million and the job on the American sector of the seaway is only 40

per cent finished. It was discovered that \$105 million would be enough only to complete three-fifths of the work.

The situation was plain; unless the corporation were empowered to issue more bonds to the Treasury it would soon be clean out of money and the seaway would be a dead duck. The amount already invested would go down the drain since, in the words of one legislator, "half a seaway is just as useless as no seaway at all".

Faced with this hard-rock fact, Congress had no choice. Based on revised calculations of total project cost, the lawmakers pushed through a bill raising the corporation's borrowing authority one third—from \$105 to \$140 million. In addition, the maximum amount that can be borrowed in any one year was boosted from 40 to 50 per cent of the \$140 million total.

Another provision of the bill authorized the Treasury Secretary to defer interest payments on the seaway bonds during the period of construction and, if desirable, during the first few years of the waterway's operation, when toll revenues from users may not cover expenses.

The deferred interest will not be charged against the \$140 million debt limitation. If it were, the borrowing authority would have had to be increased another \$10 million.

Although the seaway bill passed both the House and Senate by voice votes, there was considerable grumbling about the project turning out to be so much costlier than originally estimated. Some legislators indicated they would not have voted for the

seaway in 1954 if they had known it would be so expensive, and even staunch proponents of the projects were apologetic about the miscalculation. However, everyone recognized that there is no turning back now.

Irked congressmen pointed out that direct construction costs on the American portion of the seaway are running almost 100 per cent higher than the estimates submitted to Congress before the project was authorized. The 1954 seaway bill was geared to a figure of around \$88 million, which included the cost of a \$21.2 million canal and lock project at Point Rockaway that was deferred when Canada agreed to build duplicating facilities on its side of the St. Lawrence River. Thus, the true original estimate came to \$66.8 million when the Point Rockaway item was eliminated.

Now, however, it is estimated that direct construction costs will total no less than \$133 million.

Why this great divergence between original and present cost estimates?

Three factors are responsible, according to seaway officials. They are general increases in construction costs, changes in basic planning and design, and the need for additional construction which was not originally foreseen.

Inflation in construction costs since 1954 by itself has added \$19.2 million to the seaway bill. And basic planning and design changes resulting from engineering studies and changed traffic conditions account for another \$10.2 million.

But the largest chunk of the higher costs provided for in the new seaway

MORE YARDAGE WITH YAUN

RUGGED

Dragline Buckets in Light, Medium and Heavy Duty Weights

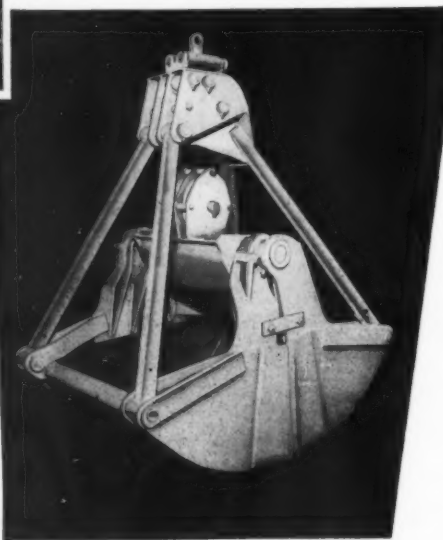
These buckets are BUILT STRONGER, with tubular channel arch, and larger bottom runners and heavier castings than most competitive buckets. They WEAR LONGER, because of manganese steel wearing parts, and because lip surfaces are hard-surfaced. They LOAD FASTER because of the pitch of the lip and hitch plate, which has been field-tested to send the bucket in at the best cutting and loading angle. They DUMP FASTER; perfect balance makes them self-dumping immediately on release. Perforated, basket and shell models.

YAUN Clamshell Buckets For Every Purpose

Choose from conventional-type buckets for rehandling, or for general purpose work, in several weights and sizes. All-welded construction eliminates costly field and shop repairs. Lip edges are surfaced. Smooth welds allow free flow of material in or out.

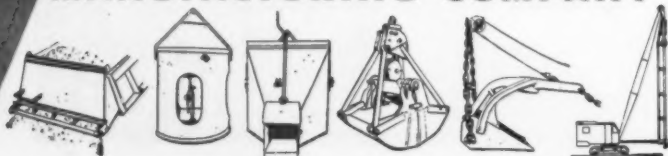
The same features are engineered into the LEVER ARM bucket—fewer moving parts give more speed, less maintenance cost in a light-weight bucket.

Dealerships now available in several key areas.



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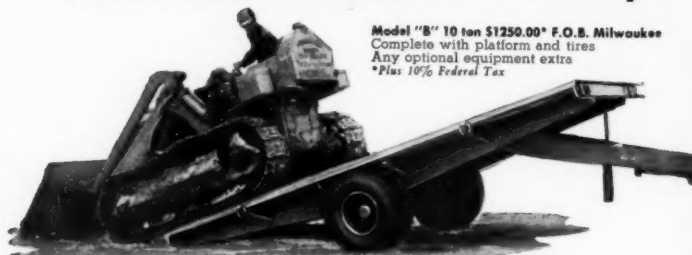
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AUGUST, 1

bill—almost \$36.7 million—stems from additional construction such as the dredging in the Cornwall Island area (\$11.9 million) and the building of more facilities at the Long Sault Canal and locks.

These three factors have boosted the project's price tag some \$66.2 million which, added to the original cost estimate of \$66.8 million, comes to \$133 million. The other \$7 million in the expanded borrowing authorization of \$140 million provides working capital for the Seaway Development Corporation.

To insure that in the future they are kept abreast of developments relating to the waterway project, the legislators wrote into the new bill a proviso that any switches in plans which would raise or lower the seaway's cost by over \$1 million must be reported to Congress. The reports must include good reasons for the changes.

This provision was a concession to criticism that arose during floor debate about the wide variance between preliminary estimates and ultimate construction costs. Several lawmakers had voiced suspicions that proponents of the seaway legislation had been less than candid with Congress in presenting an "unrealistic" figure of \$105 million as the project's cost, knowing more money would be needed later to complete the seaway.

But Rep. John Blatnik (D.—Minn.), who guided the revised authorization measure through the House, said he was "convinced that there was absolutely no intention by the engineers in preparing the original estimate to mislead Congress by filing low esti-

mates". In his opinion, the miscalculation was due simply to oversights by engineers, "some inadequate basic data, price rises, and some changed circumstances over which they (engineers) had no control."

However, another friend of the seaway, Sen. Hubert Humphrey (D.—Minn.) termed himself "dismayed and disconcerted" over the increased costs. He expressed fear that the higher shipping tolls, necessary to retire the additional seaway bonds in the required 50 years' time, would make the waterway non-competitive with alternate transportation systems, and thereby cut its potential traffic volume.

Admiral Lewis G. Castle, the seaway's administrator, sought to quiet fears on this point. He said the increase in costs necessary to liquidate the project would not affect toll rates to such an extent as to prevent maximum use of the seaway.

The increased borrowing authority will see the waterway opened to navigation by April, 1959, the drafters of the new bill state. But others—including some who are four-square behind the project—do not agree. Senator Humphrey, for one, said he was alerting his constituents that it is a sure thing that in the "not too distant future" it will be necessary to again hike the borrowing authority to meet increased costs.

Rep. J. Harry McGregor (R.—Ohio) expressed the same view. "Just as sure as I'm standing here," he declared, "they are going to come back and ask for more funds because, in my opinion, \$140 million will not complete the project." He added that an

extension of time to retire the bonds would also be sought.

As somewhat of a balm to hurt feelings, it was pointed out that inflated construction costs haven't been confined to the American side of the St. Lawrence. Testimony was aired indicating that the price tag for direct construction on Canada's portion of the seaway project was originally estimated at \$174.9 million. Now it's been revised upward 46 per cent to \$284 million.

A substantial part of the increase

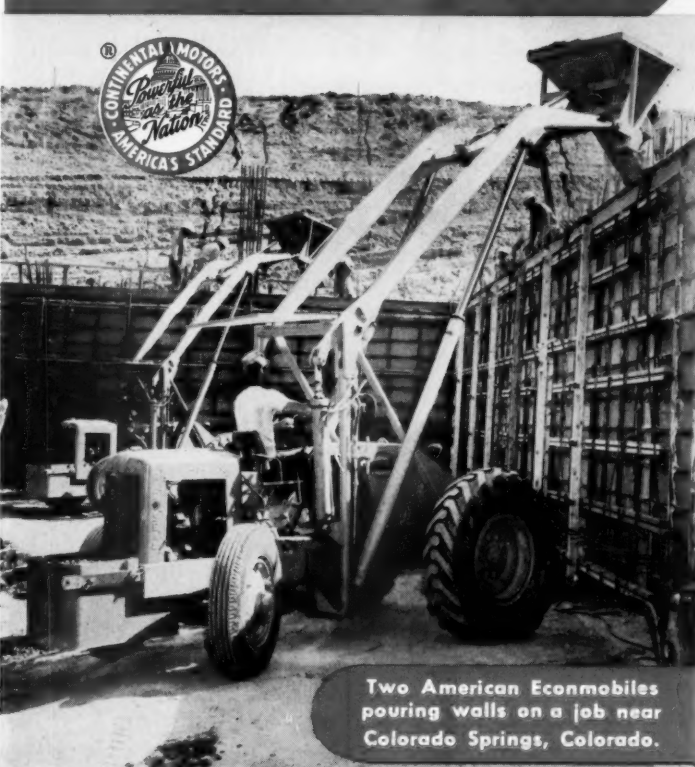
faced by our northern neighbor is due to the fact that it assumed the obligation of constructing the Point Rock-away lock and canal at Iroquois, Ont.

In sum, present estimates are that it will take \$417 million in construction funds on the part of the United States and Canada to build the St. Lawrence Seaway. Three years ago the estimate was \$263 million.

THE END

Gross toll revenue on the New York State Thruway totaled \$7,763,991.61 as of June 1, 1957.

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Two American Econmobiles pouring walls on a job near Colorado Springs, Colorado.

"Cuts Labor Costs in Half"

That's the report from Massa Brothers, Inc., Pennsylvania contracting firm, on completion of a 1½-year project consisting of two schools. "The Econmobile, in spite of rain and mud, was always working, hauling materials from storage site to actual installation, eliminating most of the jobs normally done by helpers, and doing them more economically and efficiently. It paid for itself many times over."

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AUGUST, 1957

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The Pinazza P70 portable rock drill, operating without a compressor that would have to be towed over the rough terrain, sinks a hole into rock along the pike.

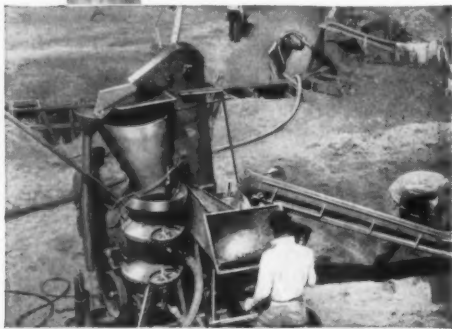
Portable rock drill makes turnpike fencing job go fast

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Airplaco Guns Set The Pace For The New "Air-Placed Concrete Era"



Swimming pools in Massachusetts and California; irrigation ditches in Kansas and Colorado; curb repairs and road maintenance in West Virginia and Washington... all over America AIRPLACO concrete guns are creating new construction landmarks (and repairing old ones), efficiently and economically.



AIRPLACO concrete guns and continuous mixers are compact, portable, and very versatile. They're available in sizes to meet every job requirement — from $\frac{1}{2}$ to 7 cu. yards per hour production. You can start now creating new AIRPLACO concrete landmarks, and making bigger profits... just write for our FREE catalog or visit your equipment distributor.



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MIXING, GROUTING AND SANDBLASTING EQUIPMENT.

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A portable rock drill, that does not require a compressor and that can be handled by two men, simplified what might have been a tough job of drilling post holes in rock along a stretch of the Massachusetts Turnpike.

The drill was the key piece of equipment used by the Anchor Fence Division of Anchor Post Products, Inc., in doing an economical job on the fencing subcontract along a 10-mile stretch near Worcester. Though some 100,000 feet of stock fence, 20,000 feet of woven-wire fence, and 100,000 feet of guardrail had to be installed along the stretch, Anchor kept its part of the work well ahead of the pace of turnpike construction.

Specifications called for woven-wire fencing near high rock cuts and in settled areas along the 300-foot-wide right-of-way. In these areas, fence posts were spaced 10 feet apart. Stock fence was used in other sections, and posts for this were spaced at 12 feet.

Included in the job was the placing of granite boundary markers, which were required at intervals of not more than 1,000 feet on the straightaway and at all angle points. Steel pin

markers had to be inserted in drilled holes whenever rock occurred.

Altogether, the contract called for 11,850 holes to be drilled, 11,600 of them for boundary fencing and 250 of them for boundary markers. About 1,200 of the holes had to be drilled into solid rock so that posts could be sunk to a depth of 3 feet. And in many of the locations, drilling had to be done on top of 50-foot-high rock cuts that were 150 feet from the centerline of the turnpike.

Faced with a tough assignment, Anchor set a 6-man crew to work with the Pinazza type P70 portable rock drill. Engineered and built according to the designs of Societa Brevetti Pinazza, Milan, Italy, the drills and accessory items are imported here by Pitnam Industrial Products Co., 261 Madison Ave., New York, N. Y. The units, assembled with American-made gasoline engines, consist of a power unit, flexible shaft, and drilling hammer. The entire rig can be readily transported in the rear of a station wagon or light pickup truck. Only two men were needed to unload the drill and wheel it to the

extra heavy **SPACE-SAVER** crane hook **BLOCKS**

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You can depend on MADESCO blocks to take all the work you can give them—and then some! All MADESCO blocks reflect 30 years of specialized engineering experience and provide extra safety margins because they're conservatively load-rated! MADESCO blocks are built to make light work of heavy chores; they'll lift loads of just about anything you have in mind. **MADESCO TACKLE BLOCK CO.**
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A fenced section curves around the Worcester entrance to the Massachusetts Turnpike. Some 100,000 feet of stock fence, 20,000 feet of woven wire fence, and 100,000 feet of guardrail were included in the rough 10-mile fencing contract in this area.



site on its wheelbarrow mounting.

Since the drill requires no compressor, the crew was spared the job of trailing 150 to 200 feet of air hose over the rough terrain.

The power unit consists of a standard American-made 5-hp gasoline engine coupled through a rubber centrifugal clutch to a rotary blower that generates air to clean the drill hole. The power unit assembly, weighing less than 200 pounds, is supplied with either a wheelbarrow mounting, or a carry-handle mounting. The drilling hammer, weighing approximately 50 pounds, is designed for drilling a 1½-inch hole as much as 16 feet deep.

On this job, the posts for the woven-wire fencing consisted of 1¾-inch H-beam sections. Holes for these posts were put down with a 2½-inch four-point bit. A 1¾-inch bit was used to drill stock fence post holes. Posts for this type of fencing were 1½-inch T-sections. The 1¾-inch holes drilled to a depth of 1½ feet accommodated the 1½-inch-diameter steel pins that serve as boundary markers in solid rock.

The Massachusetts Turnpike fencing

job by Anchor Post is the latest in a series that includes all the fencing on the West Virginia Turnpike, all woven-wire fencing on the New Jersey Turnpike, 120 miles of fencing on the Ohio Turnpike, 80 miles of work on the Indiana Toll Road, and about 50 miles of deer fencing on the New York Thruway.

The Massachusetts job was carried out under the supervision of J. D. Jasper, field superintendent. R. R. Brannan, vice president in charge of sales for Anchor Post Products, Inc., Baltimore, Md., had over-all responsibility for the fencing contract.

THE END

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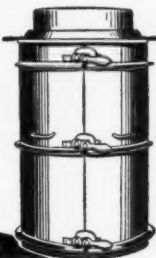
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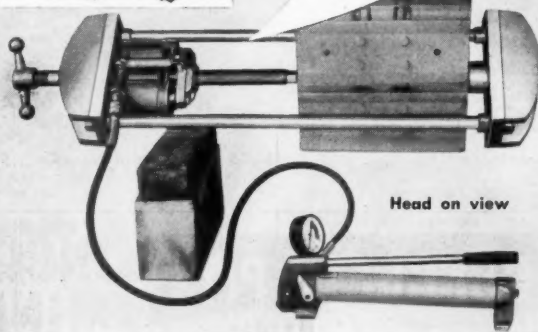
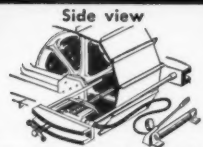
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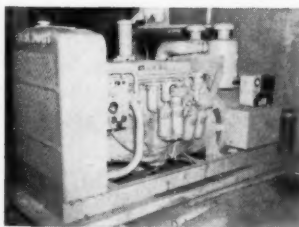
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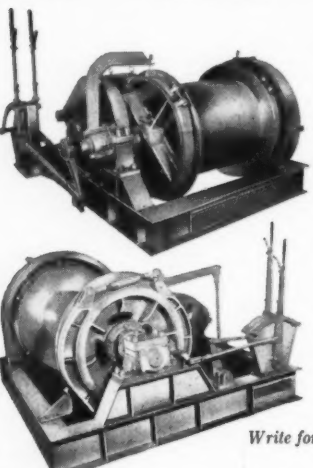
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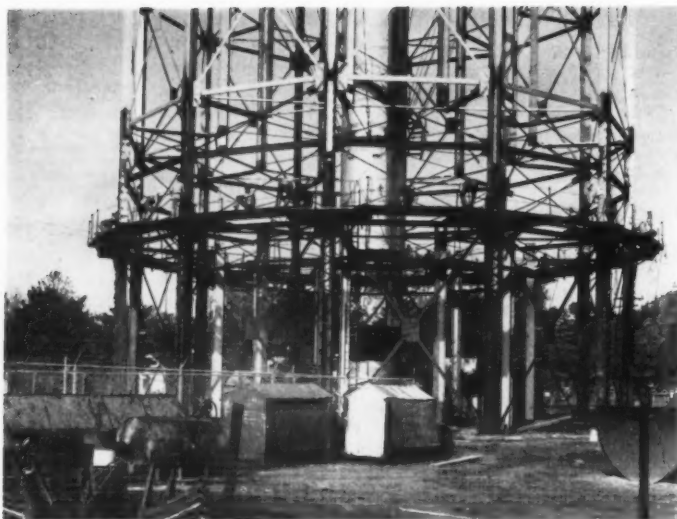
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The operation when two-thirds complete shows the angle ring and temporary cables, the sleeve-type box columns with diagonals, the developing gap in the ring of inner columns, and the temporary diagonals and struts.

Jacks raise 416-ton water tank 25 feet

How to make a tall one out of a short one? That was the question erection specialists at Chicago Bridge & Iron Co., Chicago, Ill., asked when faced with the job of increasing the height of a water tank by 25 feet in Rocky Mount, N. C. The 25-year-old

Horton radial cone-elevated tank measures 88 feet across, 100 feet to the bottom, and weighs 416 tons.

CB&I used the jacking method to raise the million-gallon tank after a new million-gallon tank had been erected. In this way, there was no interruption in city water service while the old tank was being raised, and after the job, both tanks had pressure heads that were adequate.

First, an angle ring was fastened to the central riser about 25 feet above the foundation. Temporary cables were run between this rig and the top of the outside columns to support the riser and the central portion of the tank bottom, and the riser was cut a short distance above its foundation. In this way, the connections, fittings, clean-out valve, or manhole in the bottom section of the riser were not disturbed.

Each inside circle of columns was disconnected at the top of the first panel, leaving the bottom sections standing on their foundations and all of the upper inside panels hanging free. Then, each outer column in the circle was cut loose one at a time from its base plate, the diagonals removed from them, and the new box column constructed around them. New bottom panels struts and diagonals were installed as the cutting proceeded, and lateral bracing connected between the tops of the new sleeves and the inside columns.

A scaffold was constructed about 22 feet above the foundation and twelve 75-ton manually operated jacks positioned atop each new outer column. The jacks acted upon lugs welded between the flanges of the original bottom panel columns. These lugs were moved and rewelded each time a jack approached the limit of its extension.

One man at each jack made a stroke in time to sound signals from a supervisor, and each jack stroke raised the structure about 1/64 inch. This kept the tank level at all times. Temporary struts and diagonal rods were attached to the original outside columns as the tank went up.

The tank was raised 2 inches higher than the required 25 feet so that new columns could be inserted in the inside second panel. Then the structure was lowered 2 inches to its final location, and the original outer bottom columns were welded to the tops of the new outer bottom columns. All temporary struts and rods were then replaced by diagonals.

After a new 25-foot section was added to the riser and a new section of spiral stairway inserted, the tank was ready for painting. **THE END**

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FOR ORIGINAL EQUIPMENT AND REPLACEMENT

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Publisher's Postscript



Have you noticed that the past several issues of **CONTRACTORS AND ENGINEERS** have had all the notices of new equipment and new materials on consecutive pages? We call this section "Product Parade", and its location plus the location of "Product Literature" will be prominently displayed each month in the Table of Contents on page 3.

For many years, these descriptions of new products have been scattered throughout the magazine. But the expanding size of **CONTRACTORS AND ENGINEERS** has made it more and more difficult for readers interested in the newest developments in machinery and materials to find the items in which they are particularly interested. Hence, the new grouping arrangement. With this change made, our Reader Service Department is expecting an even heavier deluge of the Request Cards bound in at page 18. This business reply card is designed to make it quick and easy for you to ask for additional information or literature from the manufacturer of any item featured in "Product Parade", "Product Literature", or the advertising columns.

Editor Bill Quirk and our field staff have been so sharply aware of the big increase in prestressed concrete work going on this year that the method will get top billing in the forthcoming September issue. There will be several on-the-job reports by our own ever-traveling staff writers, plus a full report by Ralph Monson on the World Conference on Prestressed Concrete held July 29 through August 2.

This should make the September issue of **CONTRACTORS AND ENGINEERS** of special importance to thousands of our readers. Many will want to keep it for frequent reference in the future. So new is the technique that even the veterans in this field of work believe that they have only scratched the surface in learning both prestressing technology and job applications. **CONTRACTORS AND ENGINEERS** will have descriptions of the newest techniques being used on current jobs in your hands next month, together with some hints on what lies in the future for prestressing.

Don Battenheim

PUBLISHER

"Oh, well—you can't sell 'em all."



The No. 12's part in a good team job



The Caterpillar No. 12 Motor Grader is a key piece of equipment in efficient earthmoving. By leveling fill and building and maintaining haul roads, the No. 12 helps tractor-scraper rigs handle bigger loads in faster time.

The job pictured is at Fogelsville, Pa., where W. E. Johnson had a 231,000-yard contract, relocating nearly a mile of U. S. 22. Smooth haul roads maintained by the Cat® No. 12 Motor Grader allowed three Cat DW21s pulling No. 470 Scrapers to move 4,000-6,000 yards of dirt per day.

In Mr. Johnson's words: "We're Caterpillar people. We've had a lot of experience with Cat equipment and we know when we start a job we can count on finishing it with a minimum of down time."

Construction men everywhere regard the No. 12 Motor Grader as the standard in its field. It is ruggedly built for heavy, round-the-clock work. And its balanced design and dependable four-cycle Cat Engine make it a big producer. Operators like the fast, positive controls, easy blade positioning and unobstructed visibility from the seat. Most tire down time is eliminated by tubeless tires. The exclusive oil clutch operates for many hundreds of hours without adjustment. And in-cab starting, electric or gasoline, is standard.

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Peoria, Ill.

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City..... State.....



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Twenty five ton lifting capacity!
Handles easily . . . fast on the highway . . . and
STRIPS QUICKLY, EASILY TO MEET
HIGHWAY WEIGHT LIMITATIONS



"These are the four main reasons we bought our new 25-ton Michigan Truck Crane," says Pete Smith, Secretary of Emmerson Truck & Storage Company, Battle Creek, Michigan . . . "and the four main reasons we like it so much today. Results of the past eight months of work certainly justify our selection!"

Reaches for the sky—or into a building

Photo illustrates one of the "results." Here with 85 ft boom and 15 ft jib, Emmerson lowered an old 2½-ton (8' high, 3' wide) commercial blower from the roof of Kellogg's Battle Creek plant. Entire assignment took just a few hours, including time for the Michigan Crane to drive 3 miles through town to the world famous cereal factory and time to transport the blower to Kellogg's yard several blocks away. *Cramped quarters*, on the other hand, have proved equally accessible. With a very short boom-end (made in the Emmerson shop) to reduce boom length to 17 ft, the Michigan sets machinery *inside* plant buildings. Negotiating doors as small as 8½ ft wide by 12 ft high, the Michigan drives right in where many 25-ton cranes can't go.

Handles 3-ton horizontal lifts in muck

Another "toughie" the Michigan took in stride was the laying of new 12" gas main under a new river channel. Here, the boom was used *absolutely horizontal*—45 feet out—while the Michigan maneuvered 3-ton pipe sections into place. *Biggest* load lifted to date was a 25-ton press. *Highest* loads have been 5,000 lb buckets of concrete—100 feet up! Some of the *hardest* have been in ankle-deep mud . . . setting huge roof joists, for example. Even at night, with boom flood-lit by portable chassis-mounted generator, Emmerson has set transformers and regulators for Consumers Power & Light Co.

"Performs beyond expectations; not one complaint!"—President

"We're very pleased with our Model T-24 Truck Crane," says Bob Sergeant, President and General Manager of Emmerson. "It's performed beyond our expectations; we haven't one complaint. This Michigan has done everything the manufacturer said it would—and more!"

Why don't YOU look into the advantages of Michigan Truck Crane? Write for new illustrated booklet on the Model T-24 25 Ton Truck Crane. Get the facts, today!



Michigan is a registered trademark of
CLARK EQUIPMENT COMPANY
 Construction Machinery Division
 2407 Pipestone Road
 Benton Harbor 38, Michigan
 In Canada: Canadian Clark, Ltd.
 St. Thomas, Ontario

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